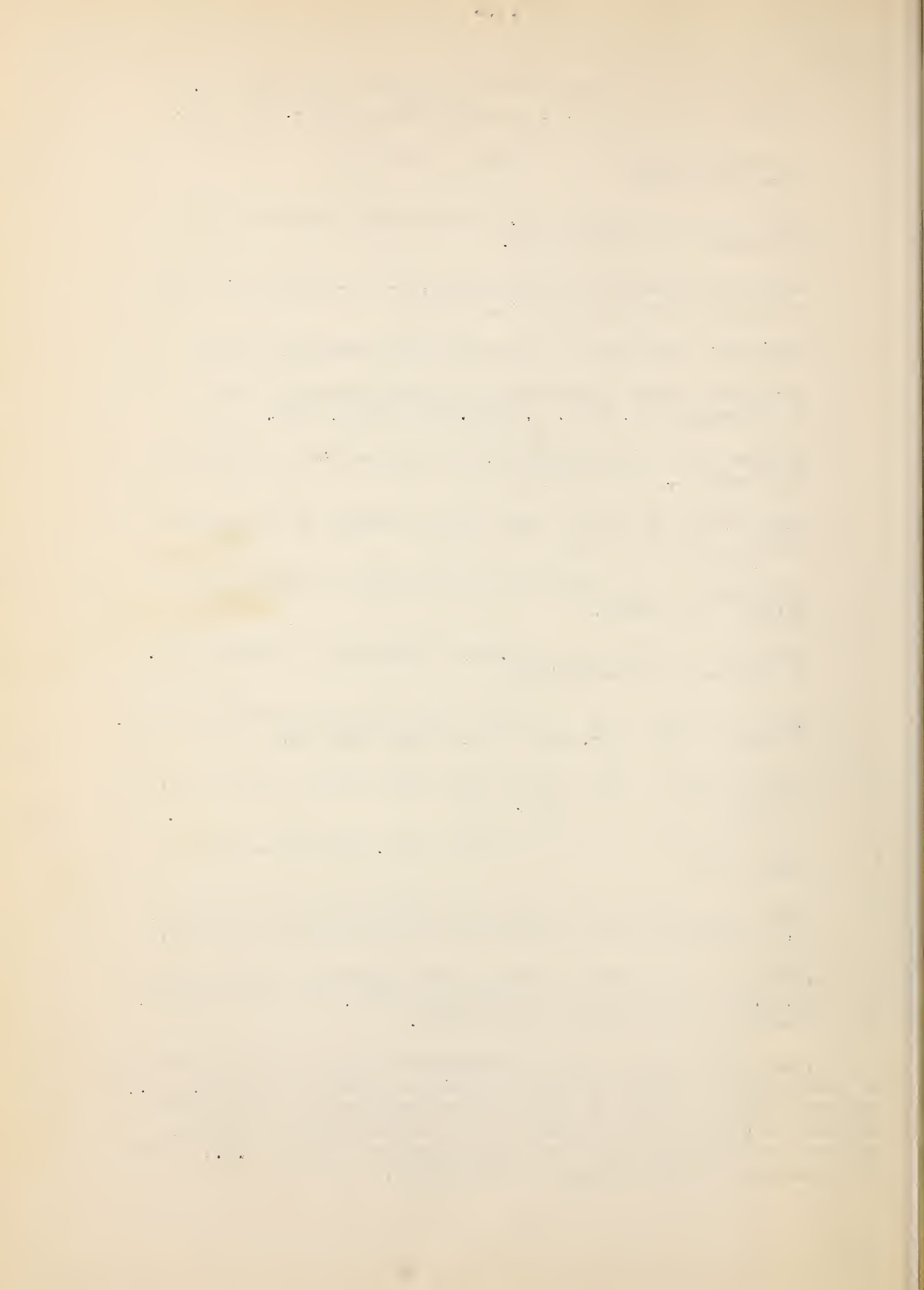


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UNITED STATES DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE  
REGION 8

Albuquerque, New Mexico,  
February 4, 1939.

MEMORANDUM FOR ADMINISTRATIVE HEADS OF FIELD UNITS

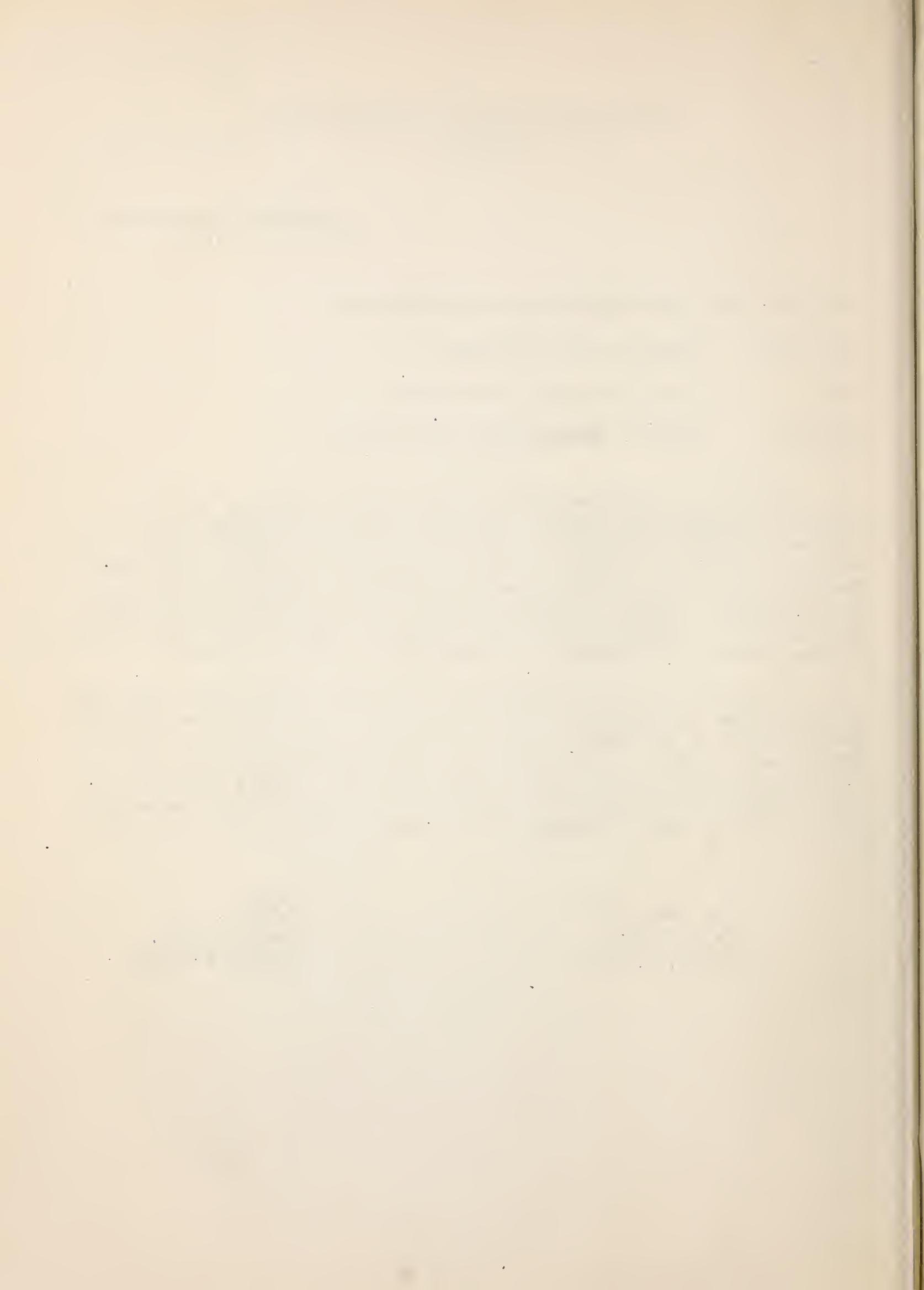
Attention: Foresters and Biologists.  
From: T. G. Taylor and A. E. Borrell  
Subject: Tree and Shrub Species Information

There is a recognized lack of information concerning soil and moisture requirements, relative erosion-control and secondary values of various indigenous and exotic species being planted in this region. Survival and evaluation studies on SCS plantings are expected to gradually furnish information regarding species adaptation to different soils and planting sites as well as soil preparation and care necessary for satisfactory growth. Further study of the wildlife value of the various plants is also essential to selection of species for planting purposes.

To this end we are transmitting to you what data we have been able to gather with the assistance of the Nursery and Soils Sections, regarding species of trees and shrubs which have been commonly planted in Region 8. Other species may be added as their use within the region increases. We are expecting that you will review frequently the material presented and make suggestions for changes and additions for which you have supporting data, so that we will finally have an authentic statement for field use.

*T. G. Taylor*  
T. G. Taylor,  
Woodland Section.

*A. E. Borrell*  
A. E. Borrell,  
Wildlife Section.



#683

UNITED STATES DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE  
REGION EIGHT  
ALBUQUERQUE, NEW MEXICO

HUGH G. CALKINS  
REGIONAL CONSERVATOR

TREE AND SHRUB SPECIES INFORMATION

Prepared by  
JOSEPH HOWELL, JR.

Regional Bulletin No. 53  
Woodland Series No. 7  
February 4, 1939.



THE FOLLOWING LISTING OF SPECIES  
WITH SILVICAL DESCRIPTIONS IS  
SUBJECT TO REVISION AND CORREC-  
TION. KINDLY TRANSMIT TO THE  
REGIONAL OFFICE ANY CORRECTIONS,  
ADDITIONS OR REVISIONS YOU FIND  
NECESSARY ON REVEGETATION FORM

NO. 1





## INDEX

Acer negundo  
Ailanthus glandulosa  
Caragana arborescens  
Catalpa speciosa  
Chilopsis linearis  
Cornus stolonifera  
Crataegus rivularis  
Elaeagnus angustifolia  
Fallugia paradoxa  
Forestiera neo-mexicana  
Fraxinus pennsylvanica lanceolata  
Gloditsia triacanthos  
Juglans major  
Juglans nigra  
Juniperus monosperma  
Maclura pomifera  
Morus alba  
Morus microphylla  
Parryella filifolia  
Parthenocissus quinquefolia  
Picca engelmannii  
Picca pungens  
Pinus edulis  
Populus alba  
Populus angustifolia  
Populus sargentii  
Prunus americana  
Punica granatum  
Purshia tridentata  
Rhus microphylla  
Rhus trilobata  
Robinia neo-mexicana  
Robinia pseudoacacia  
Rosa fendleri  
Salix amygdaloides wrightii  
Salix exigua  
Salix gooddingii  
Salix nigra  
Sambucus coerulea  
Symphoricarpos orbiculatus  
Ulmus americana  
Ulmus parvifolia  
Ulmus pumila  
Vitis labrusca



PLANT SPECIES INFORMATION FORM WOODLAND NO. 1

1. Name

Scientific

Common

2. Native country or locality and distribution

3. Habitat and associates

4. Size and form

5. Growth habit of roots - resistance to wind-throw

6. Growth requirements

a. Moisture

b. Soil

c. Alkali (resistance)

d. Elevation (limits)

e. Temperature extremes

f. Tolerance (shade)

7. Resistance to insects and disease

8. Seed production, collection, and propagation

9. Suggested erosion-control uses

10. a. Value of wood products

b. Description of wood

11. Value for wildlife

12. Planting information

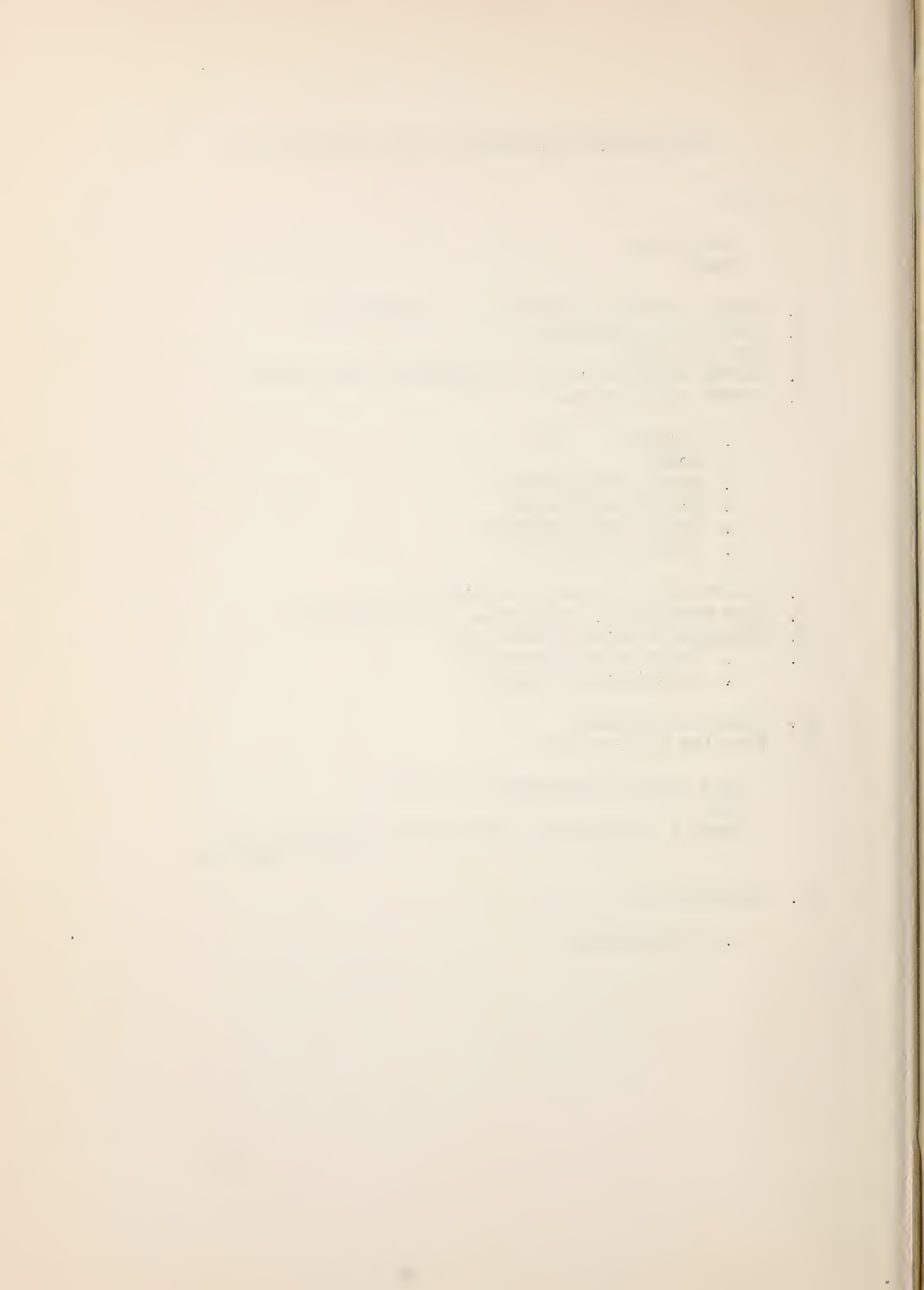
Kind and age of planting material

Time

Special requirements and handling (transplanting)  
(use of wildings)

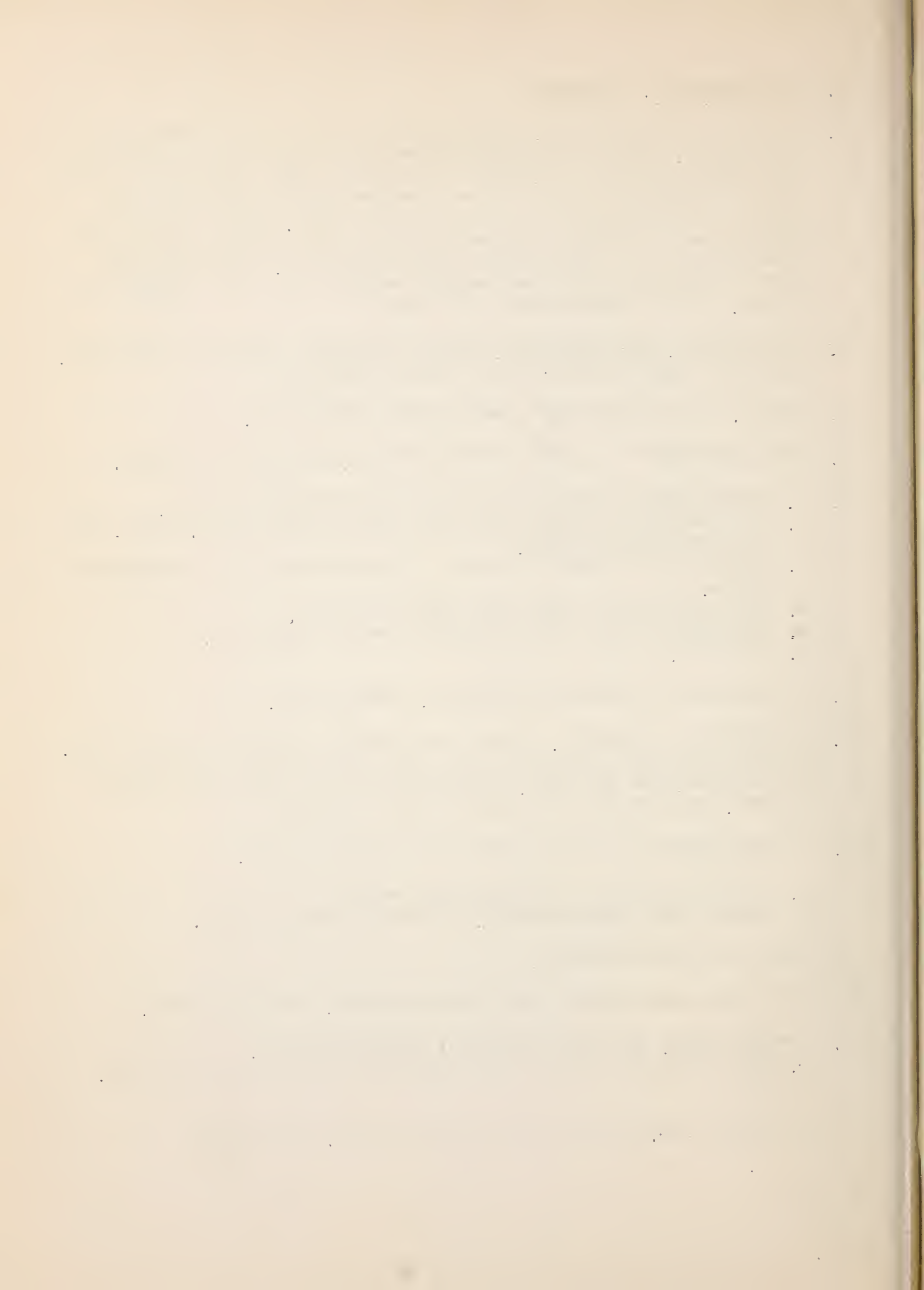
13. Miscellaneous

a. Palatability



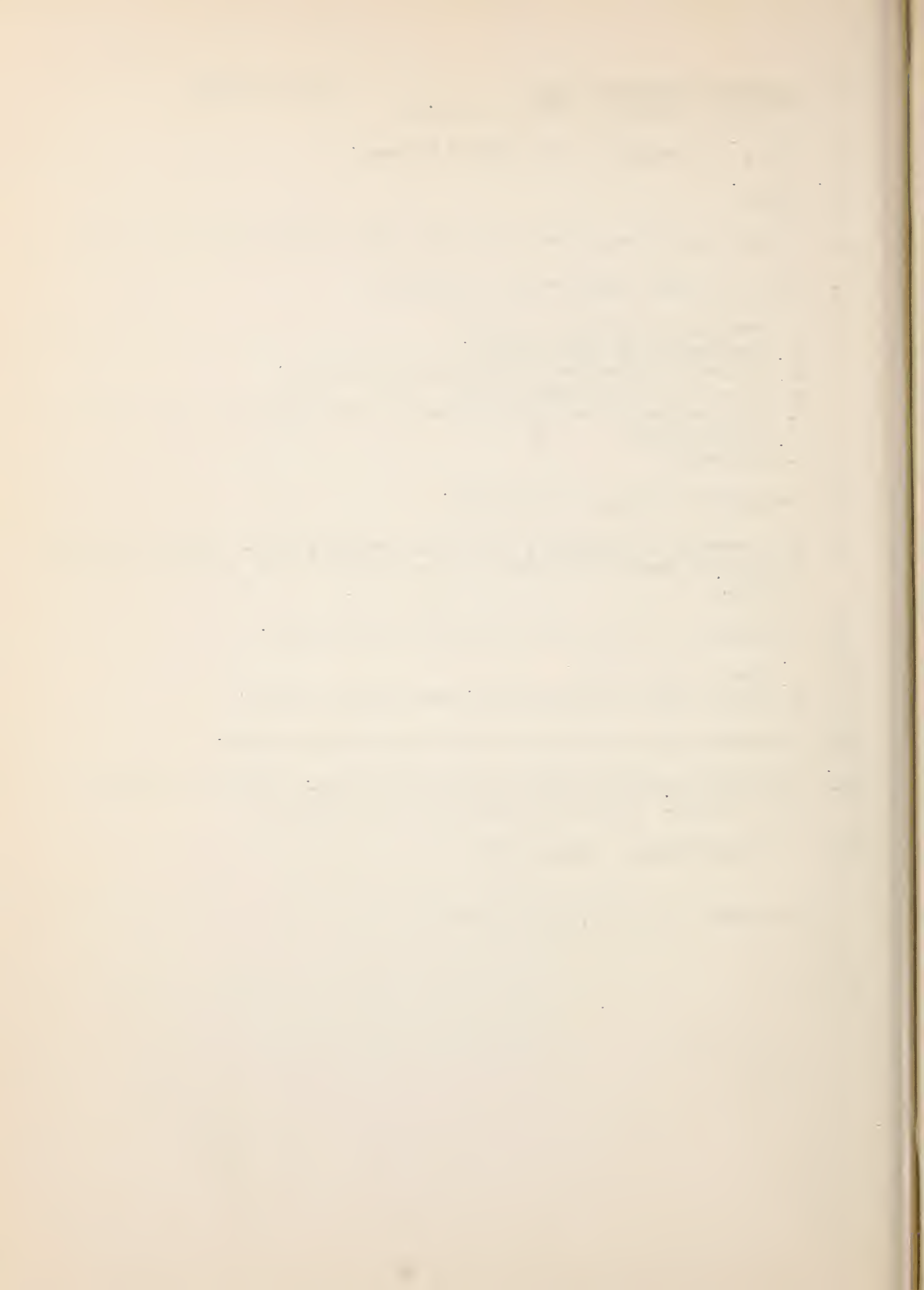
1. Acer negundo L. - Boxelder
2. Canada and United States. Western Vermont, western Massachusetts and Connecticut, central New York, southwestern Ontario, and southward to west-central Florida, westward to Minnesota, Iowa, Nebraska, Missouri, eastern Kansas, Arkansas, eastern Oklahoma, western Louisiana and eastern and southern Texas. Var. interior Sarg. southern Manitoba, Saskatchewan and Alberta to Wyoming and through mountain regions of Colorado and Utah to New Mexico and Arizona; var. arizonicum Sarg. mountain canyons, central and southern Arizona up to 8000 ~~degrees~~ <sup>feet</sup> altitude, and in Socorro County, New Mexico
3. Stream banks, moist lowlands, mountain canyons. Associated with elm, hackberry, maple, walnut, green ash, and others.
4. A tree, 50 to 70 feet high, with a large round head.
5. Roots penetrate to a depth of 5 to 10 feet, moderately windfirm.
6.
  - a. Prefers moist sites but is moderately drought-resistant.
  - b. On a variety of soils; calcareous soils, sandy loams, sands, and rich, deep humus soils.
  - c. Moderately resistant to alkali. On calcareous and circumneutral soils.
  - d. From sea level to 7500 feet above sea level.
  - e. Temperature range from -30 degrees to 115 degrees F.
  - f. Tolerant.
7. Not resistant to disease or insects. Short lived.
8. Seed matures in October. Amount and fertility dependent upon season. Cutting tests must always be made of this seed before collection. At best fertility is not high. Germination is poor, slow and very irregular. Seed should be planted in fall or winter.
9. In moist places as a soil binder and desilting agent.
10.
  - a. Wood of low value for fuel, pulp, lumber.
  - b. Light, soft, close-grained, not strong, creamy white.
11. Medium value for wildlife.
12. 1-0 rooted stock suitable for field planting. Easily handled.
13. A trashy tree. Numerous varieties. Suckers freely.
  - a. Palatability: cattle, low; sheep, low; rabbits, occasionally.

References - 1, 2, 3, 4, 5, 6, 9, 13, 16, 18, 22, 33, 40.



1. Milanthus glandulosa Desf. Tree-of-Heaven  
(Milanthus altissima (Miller) Swingle)
2. China. Naturalized in the United States.
3. China.
4. A medium sized tree, 30-60 feet tall, with a wide flat-topped crown.
5. Deep and widely spread roots. Windfirm.
6.
  - a. Resists drought to an extreme.
  - b. Indifferent to soil choice.
  - c. Moderate resistance to alkali pH 6.0 to 8.0.
  - d. From sea level to 6000 feet.
  - e. Temperature ranges from 0 degrees to 125 degrees F. Does not stand extreme cold.
  - f. Tolerant.
7. Resistant to disease and insects.
8. Seed matures in September, abundant, fertility good. Collection easy. Germination prompt and plants easily handled in the nursery. Suckers readily.
9. A soil binder in dry sites as well as moist sites.
10.
  - a. Wood of low value.
  - b. Soft, weak, coarse-grained, pale yellow, satiny.
11. No information; probably of little value except cover.
12. 1-0 rooted stock for field planting in spring. Spreads by suckers as well as seed. Rooted cuttings from female plants.
13.
  - a. Palatability: sheep, low.

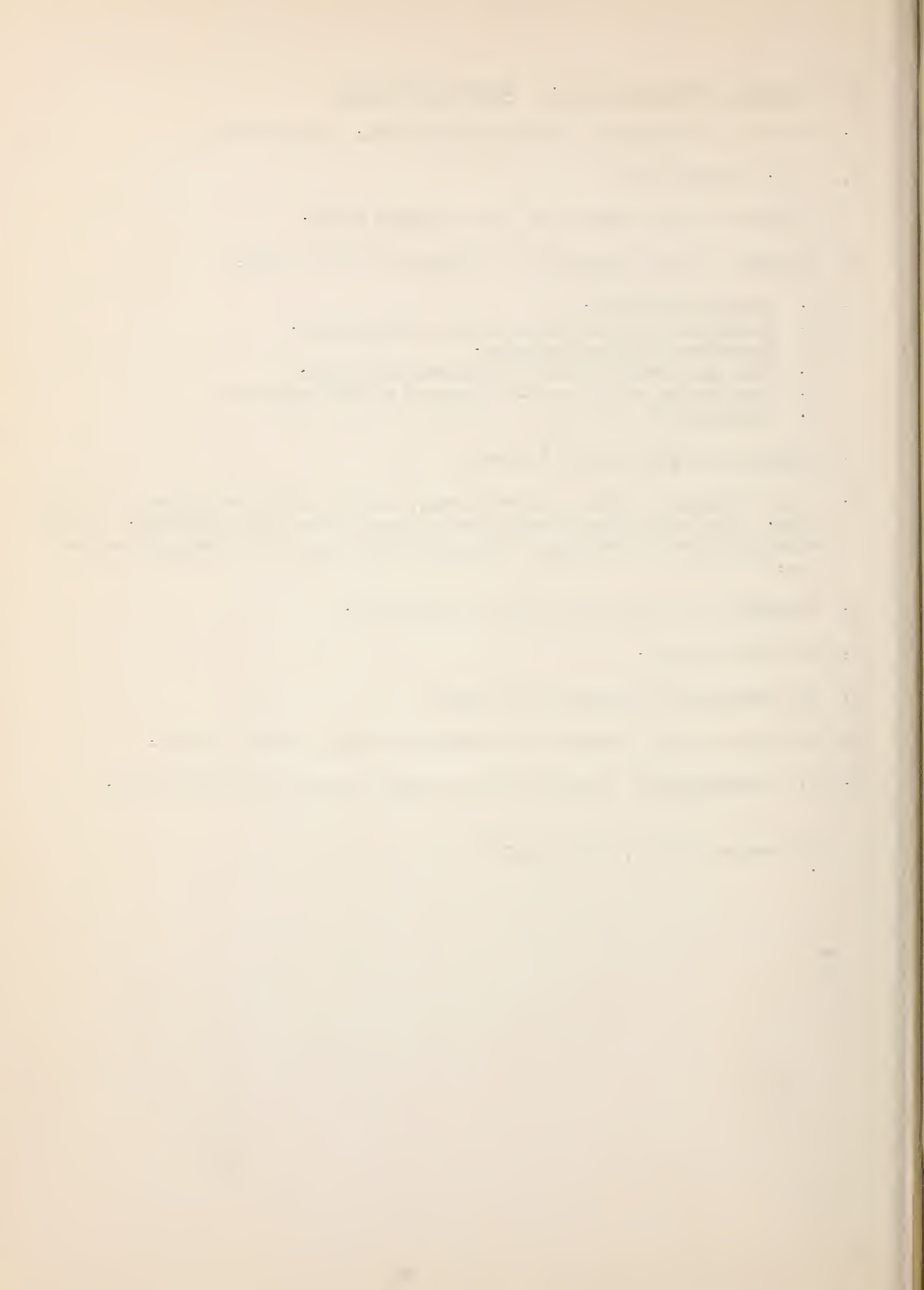
References - 1, 2, 9, 11, 16, 40.





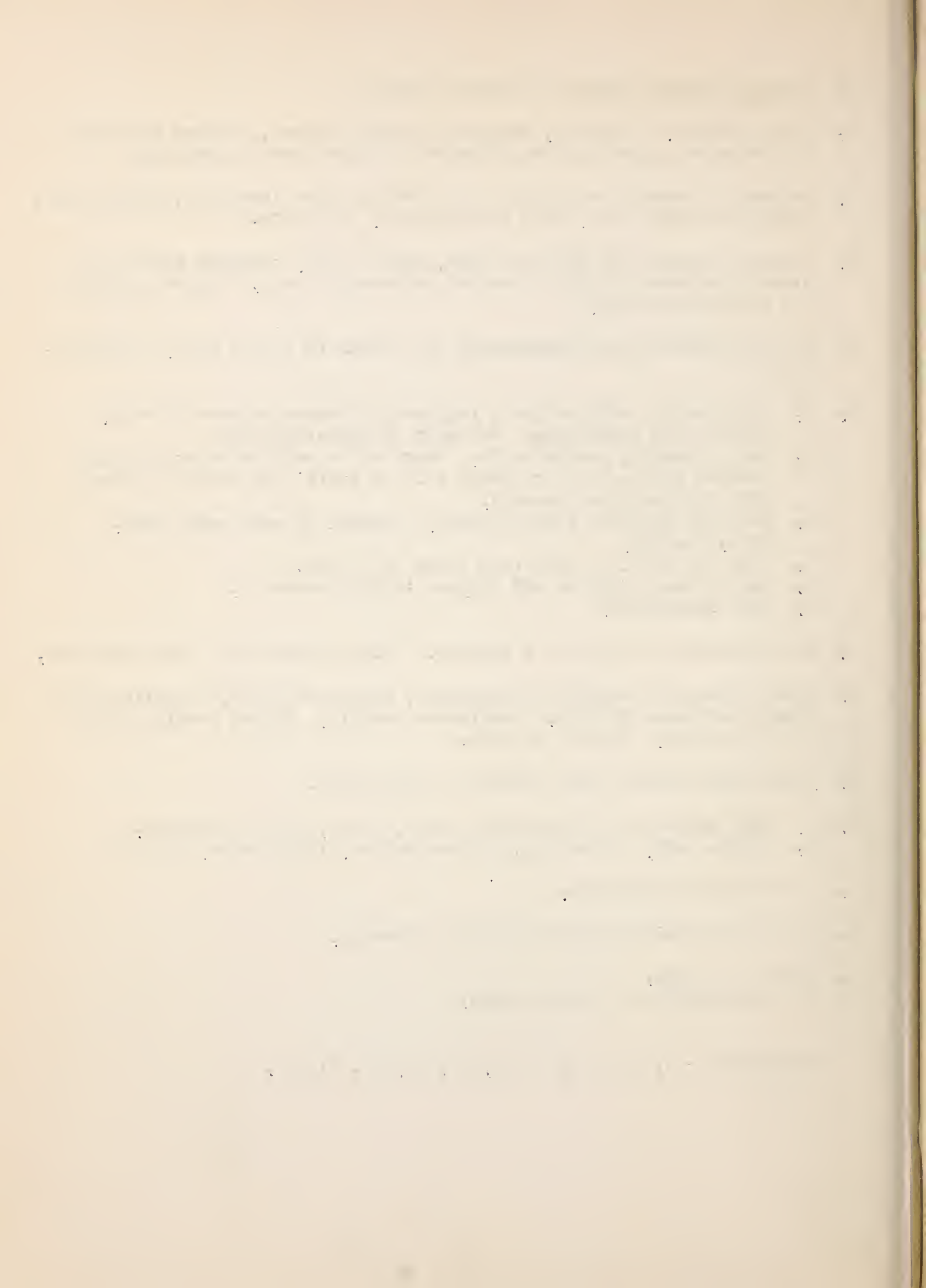
1. Caragana arborescens Lam. - Siberian Pea-Tree
2. Siberia and Manchuria. Introduced in 1752. Naturalized.
3. Asia. Naturalized.
4. A shrub or small tree to 20 feet, upright habit.
5. Windfirm. Roots penetrate to a depth of 5 to 10 feet.
6.
  - a. Drought-resistant.
  - b. Sandy loam and clay loam soils, well-drained.
  - c. Moderately alkali-resistant.
  - d. From sea level to 7000 feet above sea level.
  - e. Temperature range from -30 degrees to 120 degrees F.
  - f. Intolerant ?
7. Resistant to disease and insects.
8. Fruit matures in July, moderate crops, fairly easily collected, fertility high. Seed germinates evenly two to three weeks after planting. Plants easily handled in nursery. Propagated by seeds, root cuttings or layers.
9. Valuable as a soil binder and in windbreaks.
10. No value as wood.
11. No information; probably good cover.
12. 1-0 rooted stock suitable for spring planting, easily handled.
13.
  - a. Palatability: cattle, medium; sheep, medium; rabbits, medium.

References - 1, 2, 5, 6, 19, 20.



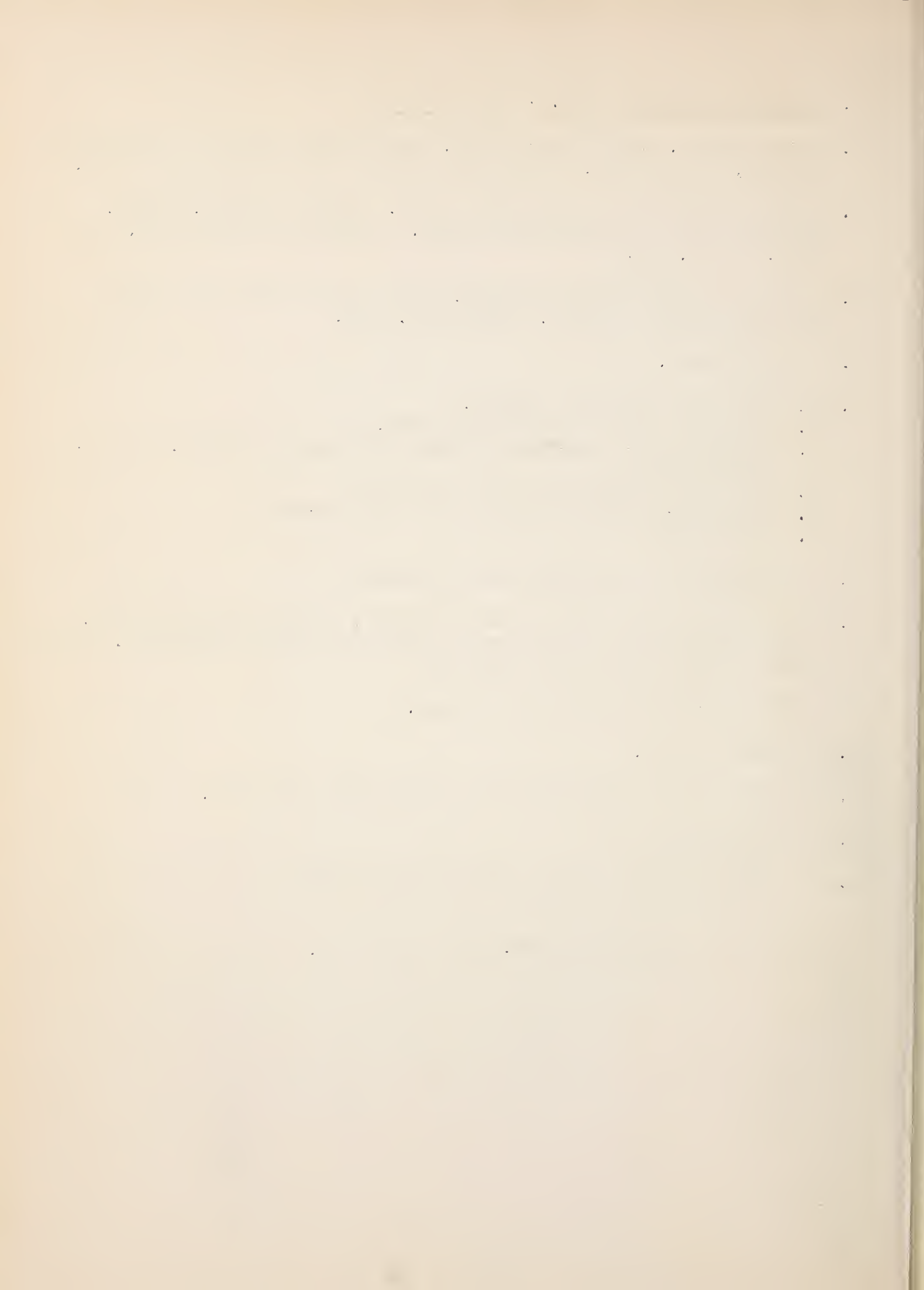
1. Catalpa speciosa Engelm. - Western Catalpa
2. United States. Illinois, through southern Indiana, western Kentucky and Tennessee, southeastern Missouri and northeastern Arkansas.
3. Borders of streams and ponds, and fertile, often inundated, bottomlands, associated with maple, elm, hickory, ash, oaks, etc.
4. A tree, occasionally 120 feet high, with a tall, straight trunk and slender branches forming a narrow round-topped head. Vigorous growth and relatively hardy.
5. Tap and lateral roots penetrating to a depth of 1 to 5 feet. Not wind-firm.
6.
  - a. Moist soils, well drained; requires 25 inches or more of rain. Stands some inundation. Somewhat drought-resistant.
  - b. Deep, fertile, porous soils. Does not do well on heavy, poorly drained soils, or poor, sandy soil or stiff clay soils, or those with an impervious subsoil.
  - c. Does not tolerate strong alkali. Neutral or acid soils best. pH 6.0 to 8.0.
  - d. From sea level to 6000 feet above sea level.
  - e. Temperature extremes -35 degrees to 120 degrees F.
  - f. Very intolerant.
7. Not resistant to disease or insects. Badly damaged by a soft heart-rot.
8. Fruit matures in August and September, crops are heavy, fertility good. Easily collected by hand. Germinates readily. Plants easily handled in the nursery. Sprouts readily.
9. A fair soil binder where cutting is not active.
10.
  - a. High value as wood products, posts, poles, fuel and lumber.
  - b. Light, soft, not strong, coarse-grained, light brown, durable.
11. Low values for wildlife.
12. 1-0 stock readily adapted to spring planting.
13. Source of honey.
  - a. Palatability: rabbits, high.

References - 1, 2, 3, 5, 9, 11, 13, 16, 22, 31, 40.



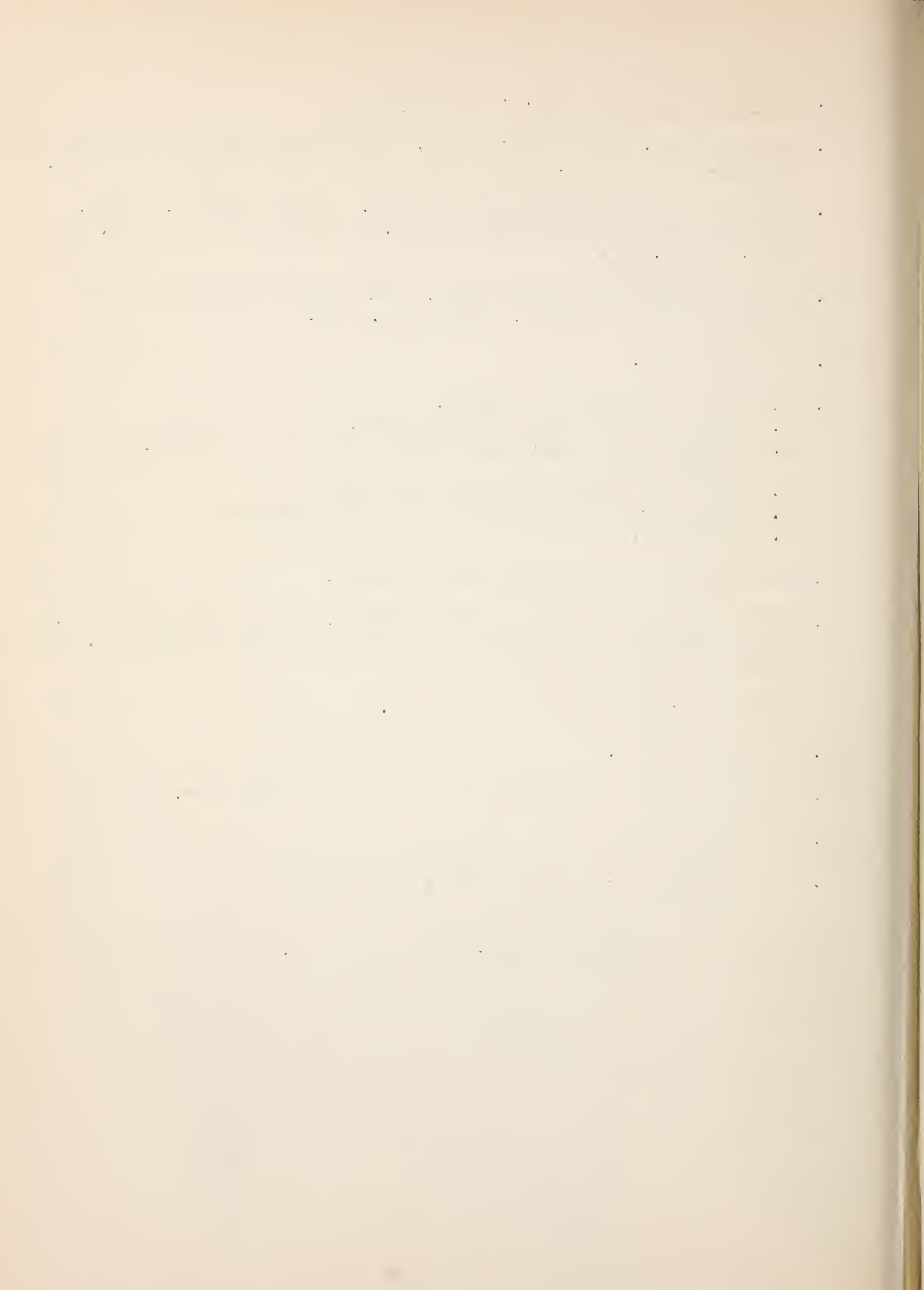
1. Cornus stolonifera Michx. - red-osier Dogwood
2. United States and Canada. Newfoundland and Labrador to Yukon Territory, California, New Mexico, Kansas, Virginia and southern Arizona.
3. Mainly along stream banks. Ponderosa pine and aspen-spruce belts. Associated with willows, aspen, alder and birches.
4. A shrub 3 to 10 feet tall, thicket forming.
5. Wide-spread roots which prevent cutting by water.
6.
  - a. Requires an ample moisture supply.
  - b. Moist, rich soils but will grow on sand dunes.
  - c. Tolerates alkali in the presence of abundant water.
  - d. Sea level to over 8500 feet above sea level.
  - e. Temperature extremes from -50 degrees to 100 degrees F.
  - f. Tolerant.
7. Resistant to disease and insects.
8. Seed matures about July, moderately easy to gather. Ten to twelve months stratification necessary for nursery production. Layers and cuttings may be used.
9. Valuable along living streams or on dunes that remain moist.
10.
  - a. No value for wood.
11. Valuable as wildlife food and protection.
12. Probably 2-0 stock satisfactory for field use.
13.
  - a. Palatability: cattle, medium; horses, medium; sheep, low.

References - 1, 2, 4, 14, 22.



1. Elaeagnus angustifolia L. - Russian Olive
2. Southern Europe and western Asia. Planted throughout the United States.
3. Moist, rich soil in open sunlight, but does well under much less desirable circumstances. Does not grow naturally in the United States, although it may exist as escapes along ditches and water courses.
4. A small tree, usually under 30 feet, with an erect or commonly leaning or twisted and distorted trunk, producing an irregular tree. Forms dense thickets under favorable conditions.
5. Has a taproot and spreading laterals penetrating to a depth of 5 or 10 feet in the soil. Laterals are long and spreading. Resistant to windthrow.
6.
  - a. Prefers considerable soil moisture, but will grow on drier sites and is moderately drought-resistant.
  - b. Does best on moist, rich soils such as loams and clay loams, fair on sandy loams. Will grow on limestone soils.
  - c. Moderately alkali-resistant - pH 6.0 to 8.0.
  - d. Plantings from 500 feet or less to 8000 feet above sea level.
  - e. Temperature range from -40 degrees to 110 degrees F.
  - f. Intolerant. Needs room in windbreaks.
7. Moderately resistant to insects and disease.
8. Fruit ripens in late summer and persists on the tree; crops are abundant and easily gathered by stripping. After-ripening period necessary. Three or four months stratification or plant in early winter. May be propagated from hardwood cuttings.
9. This plant is valuable for soil binding, desilting, wildlife food and general revegetation. Valuable in windbreaks or control of wind erosion.
10.
  - a. Wood of little value although it may make fence posts and fuel.
  - b. Wood dark brown, light, weak, coarse-grained, easily split and fairly durable in contact with the soil.
11. Provides excellent food and shelter for wildlife. Fruit eaten by many species of birds, including Gambel quail; available through most of winter.
12. 1-0 stock suitable for field planting in the spring.
13.
  - a. Palatability: cattle, low; horses, low.

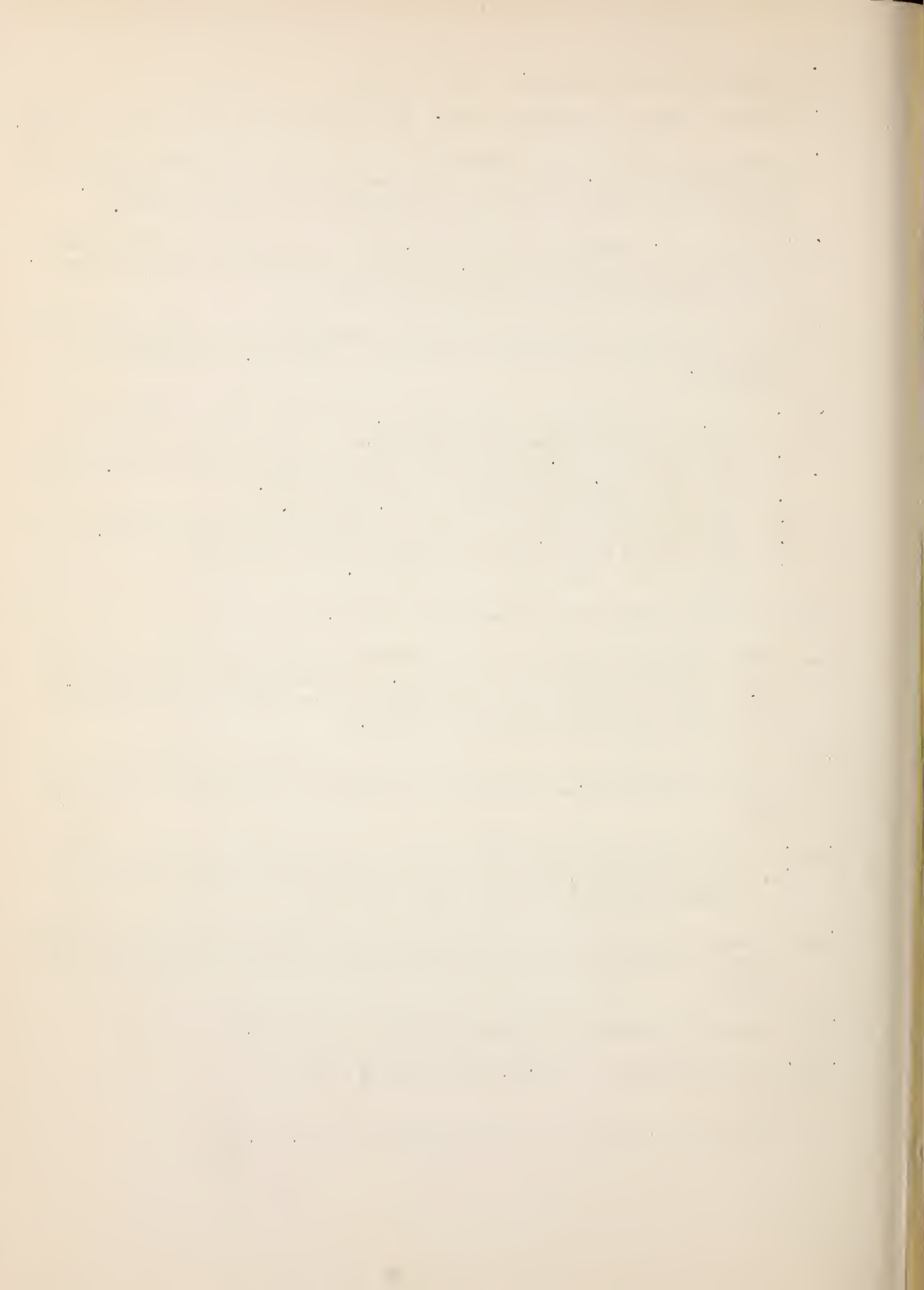
References - 1, 2, 5, 6, 11, 14, 16, 19, 20, 21, 40.





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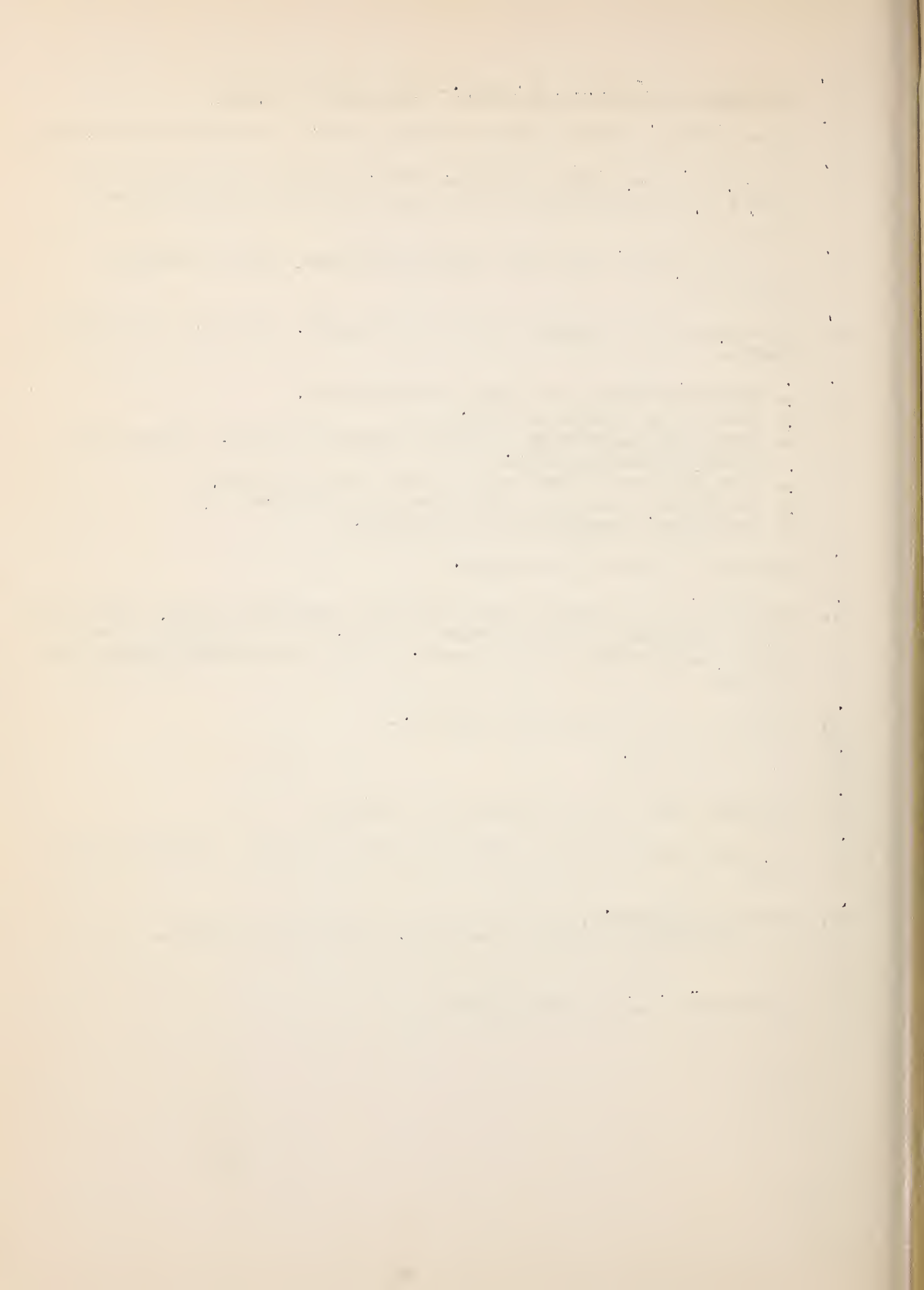
1. Fallugia paradoxa (D. Don.) Endl. - Apache Plume
2. United States. Western Texas and southern Colorado to southern Nevada, southeastern California south into Mexico.
3. Dry, rocky ridges, open canyons and sides of arroyos. Found in the Cevillea, artemisia and lower pinon belts, and at times passing through pinon-juniper belt to the ponderosa pine belt. Creosote bush, black brush, sagebrush, pinon, juniper, ponderosa pine, oaks, etc.
4. An upright shrub to 5 feet tall, difusely branched.
5. Lateral and taprooted, penetrating to a depth of 4 to 5 feet or more and widespreading.
6.
  - a. Drought-resistant.
  - b. Grows on a wide variety of soils but does best on the deep, moist soils, well-drained. Common on sandy or clay loams.
  - c. Neutral to alkaline soils, calcareous soils and moderately resistant to alkali.
  - d. From 1000 feet to 8500 feet above sea level.
  - e. Temperature extremes -20 degrees to 125 degrees F.
  - f. Intolerant, prefers sunny places.
7. Moderately resistant to insects and disease.
8. Seed ripens in July and is moderate to abundant, of fair to good fertility. Collection is easy because of abundance. Germination prompt, moderately easy to propagate in nursery.
9. \* Good erosion-control plant for soil binding and desilting.
10. No value to wood.
11. Furnishes some forage and shelter to wildlife.
12. 2-0 planting stock suitable for spring planting. 1-0 stock also used. Easily handled.
13. a. Palatability: cattle, medium; horses, medium; sheep, medium; rabbits, medium.

References - 2, 4, 14, 22, 40.



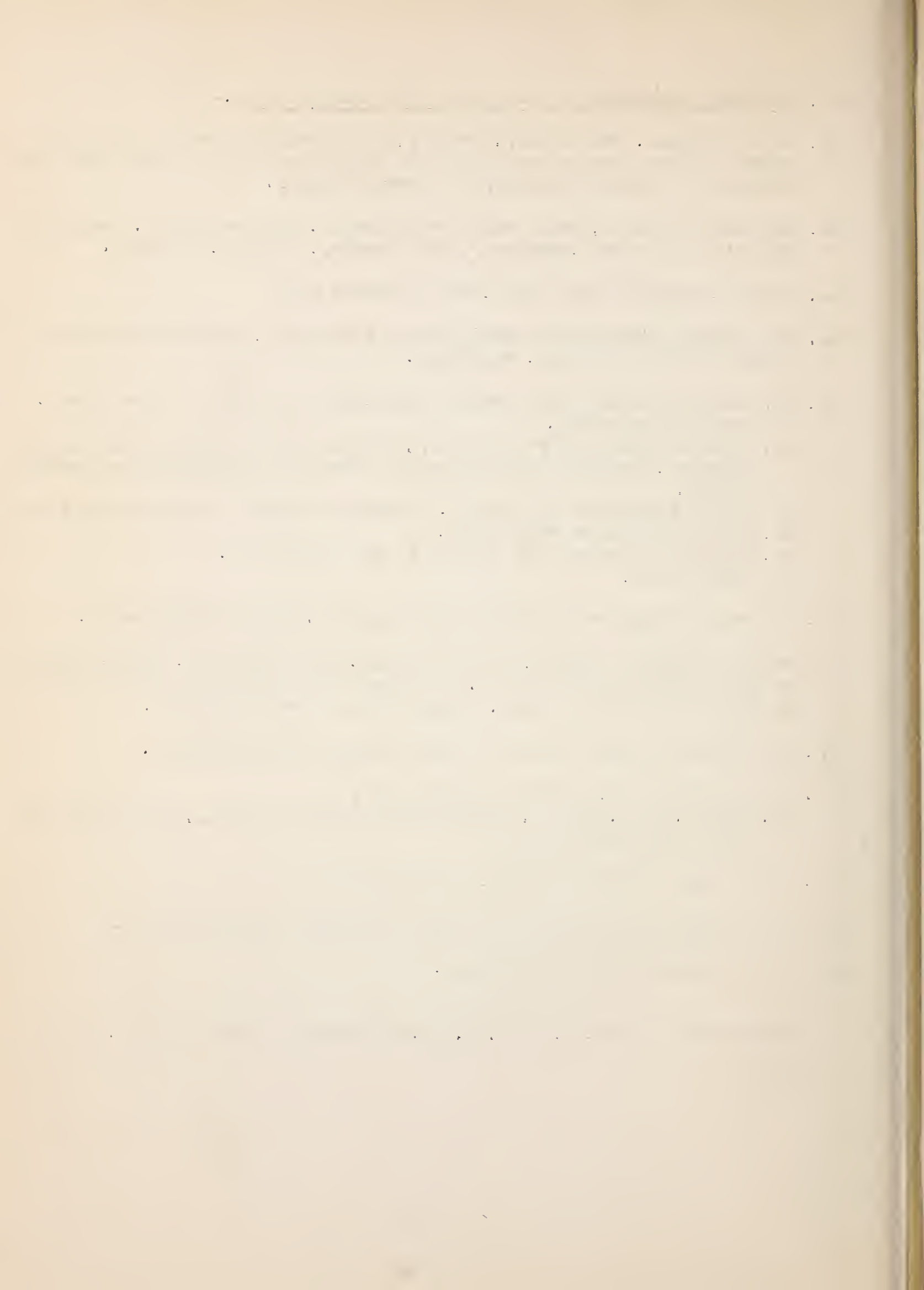
1. Forestiera neo-mexicana A. Gray. - Wild Olive - Adelia
2. United States. Western Texas to central Utah and southern California.
3. In canyons, along stream courses, parks, woodlands and in the semi-desert. Associated with creosote bush, sagebrush, pinon, juniper, oaks, etc.
4. A smooth shrub or small tree attaining 20 feet, with an irregular rounded top.
5. Wide-spreading root system of tap and laterals. Windfirm and resists erosion.
6.
  - a. Drought-resistant but found in moist sites.
  - b. Found on a variety of soils.
  - c. Extremely resistant to moderate amounts of alkali. Calcareous soils and neutral soils.
  - d. From 500 feet to 7000 feet or more above sea level.
  - e. Temperature range from -20 degrees to 125 degrees F.
  - f. Intolerant, usually found in thickets.
7. Resistant to disease and insects.
8. Fruit matures in August, crops are heavy, fertility is high. Seed collection difficult as drupes stick to bushes. Germination is prompt and plants easily handled in the nursery. May be propagated by layers or cuttings.
9. Useful for soil binding and desilting.
10. Wood of low value.
11. Furnishes food and good shelter for wildlife.
12. 1-0 rooted stock easily handled for spring planting. Cuttings may be used.
13. Spreads by layering.
  - a. Palatability: cattle, low; horses, low; sheep, medium.

References - 1, 2, 4, 14, 22, 40.



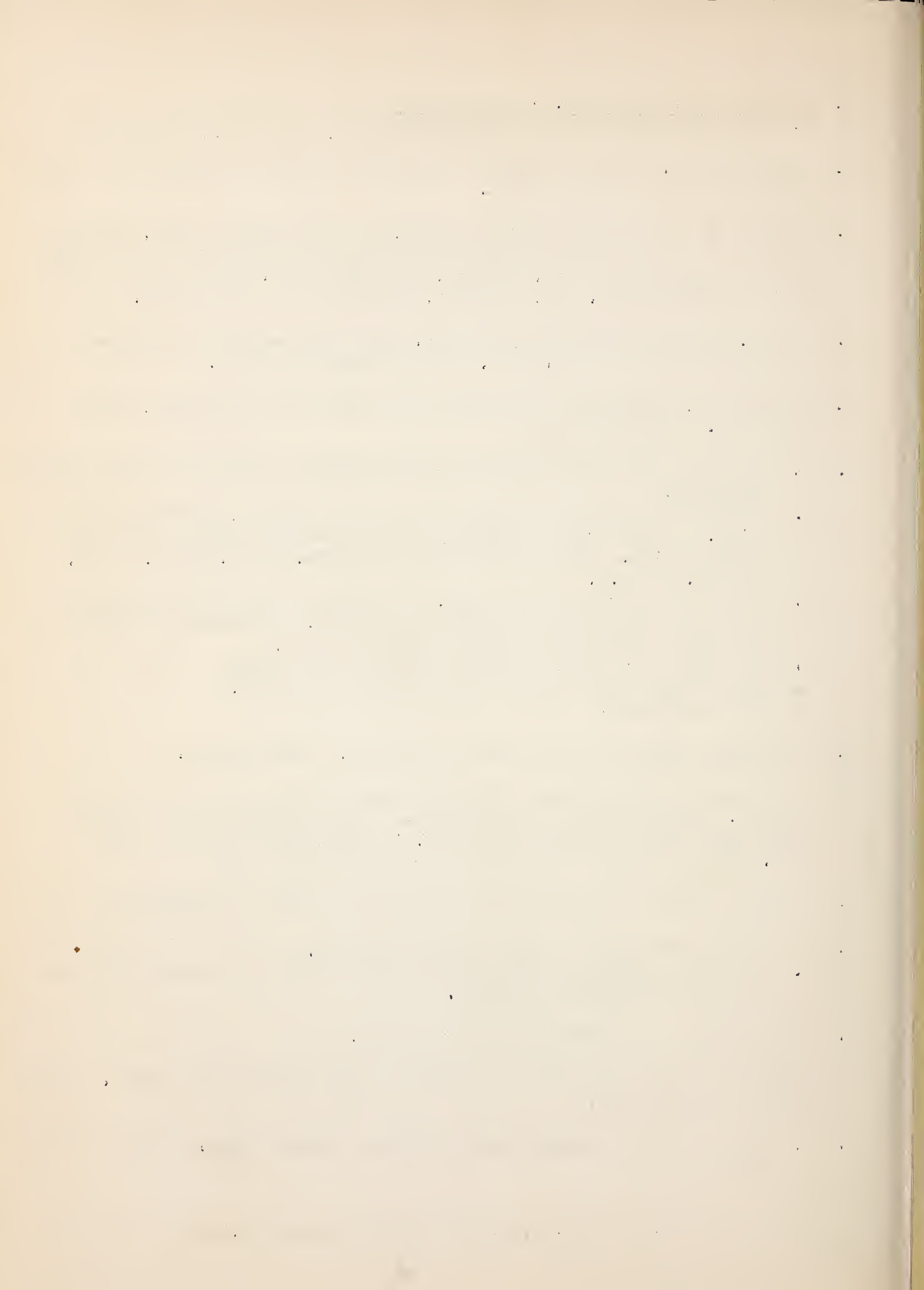
1. Fraxinus pennsylvanica lanceolata (Borkhausen) Sarg. - Green Ash
2. United States. From Maine, Vermont, and southward to western Florida; westward to the eastern ranges of the Rocky Mountains, and into Utah and eastern and northern Arizona, and through Texas.
3. Low, moist ground, stream banks and uplands. Humid regions. Associated with elm, hackberry, sycamore, black cherry, red ash, and oaks.
4. A tree, rarely 60 feet high, with a rounded top.
5. Deep-seated fibrous roots which extend laterally, penetrate the soil to a depth of 5 to 10 feet. Windfirm.
6.
  - a. Prefers a moist, well drained soil, but does grow on drier sites. Drought-resistant.
  - b. Found on sandy loams and loams, but will grow on stiff clays of the uplands. Requires a fertile soil. Stunted on impenetrable hardpan soils.
  - c. Marked resistance to alkali. Prefers a neutral or circumneutral soil.
  - d. From sea level to 6000 feet.
  - e. Temperate extremes -35 degrees to 110 degrees F.
  - f. Intolerant.
7. Moderately resistant to disease and insects. Borers infest wood.
8. Fruit matures in August, abundant crops, high fertility. Easily gathered by hand or shatter from tree. Seed should be planted in winter or soaked in water two or three days. Germination is very irregular.
9. As a filler and soil binder in moist places. Shelterbelts.
10.
  - a. A valuable timber tree, durable wood.
  - b. Heavy, hard, strong, coarse-grained, easy to split, light brown with thick greenish sapwood.
11. Fairly high wildlife values, especially food.
12. 1-0 rooted stock suitable for spring planting. Easily handled.
13.
  - a. No palatability information.

References - 1, 2, 3, 5, 6, 9, 11, 13, 16, 18, 19, 20, 21, 22, 32, 40.





1. Gleditsia triacanthos L. - Honey Locust
  - a. Gleditsia triacanthos inermis Willdenow - Thornless Honey Locust
2. United States. Southern Ontario westward to eastern Nebraska and Kansas, southward to Florida and Texas.
3. Borders of streams and intervalle lands, in moist fertile soil, usually growing singly or occasionally covering almost exclusively considerable areas; less common on dry, sterile, gravelly hills. Found in the humid regions with hickory, ash, boxelder, basswood and black walnut.
4. A tree, 75 to 140 feet high, slender, spreading, somewhat pendulous branches forming a broad, open, rather flat-topped head.
5. Deep rooted, penetrating the soil to a depth of 10 to 20 feet, wide-spreading. Windfirm.
6.
  - a. Prefers ample soil moisture for best growth, but is also quite drought-resistant.
  - b. Found on a variety of soils but does best on deep, fertile, humus soils. Does poorly on gravelly or heavy clay soils and fails on shallow soils. Lime is favorable to growth. pH 6.9 to 7.2 best, or pH 6.0 to 8.0.
  - c. Prefers a neutral to acid soil, but will grow on soils containing considerable quantities of lime and alkali. Moderately resistant to alkali providing the water supply is ample.
  - d. Found from sea level to 5000 feet above sea level.
  - e. Temperature extremes -30 degrees to 110 degrees F.
  - f. Very intolerant.
7. Moderately resistant to insects and disease. Twig girdler.
8. Seed matures in the autumn, is fairly abundant and moderately easy to collect. Seed delayed in germination. Most practical way to secure germination of this hard-coated seed, in nursery, is to treat with Conc.  $H_2SO_4$  (sulphuric acid) for approximately one hour.
9. Not too valuable for erosion control, but is useful in windbreaks.
10.
  - a. Valuable for fence posts, rails and lumber.
  - b. Wood hard, strong, coarse-grained, very durable in contact with the soil, red to bright red-brown.
11. Slight value to wildlife as food and cover.
12. 1-0 rooted stock suitable for planting in the field in the spring. Needs care and cultivation.
13.
  - a. Palatability: cattle, medium; horses, medium; sheep, medium; rabbits, high.



1. Juglans major Hell. Nogal  
(Juglans rupestris major Torrey)
2. United States. Texas, central and southern New Mexico and Arizona.
3. Banks of streams and in canyons. Covillea to ponderosa pine belt associated with sycamore, cottonwood, willows, mulberry, ash and oaks.
4. A tree, sometimes 50 feet high, single stem or a clump of stems forming a narrow head.
5. Moderately deep and wide-spread root system. Moderately windfirm.
6. a. Requires an abundance of moisture.  
b. Rough, rocky soils to deep, rich soils. Indifferent to quality.  
c. Moderately alkali-resistant.  
d. Ranges 1400 to 7000 feet above sea level.  
e. Temperature range from -30 degrees to 120 degrees F.  
f. Very intolerant.
7. Moderately resistant to disease and insects. Subject to heart rot and damaged in some localities by a witch broom organism. Sometimes defoliated by caterpillars.
8. Fruit ripens in August and September, abundant crops at short, irregular intervals, high fertility. Easily collected by shattering from tree. Prompt germination after stratification. Easily handled in nursery.
9. Cover plant in moist canyons.
10. a. Used some for fuel and posts. Sound material has relatively high value, but present value low due to small amounts available.  
b. Hard, heavy, strong, coarse-grained, deep chocolate-brown heartwood.
11. Moderate value to wildlife as food and cover.
12. 1-0 rooted stock for spring planting. Easily handled.
13. Nuts.  
a. Palatability: cattle, low; horses, low; sheep, medium; rabbits, medium.

References - 1, 2, 12, 13, 22, 40.

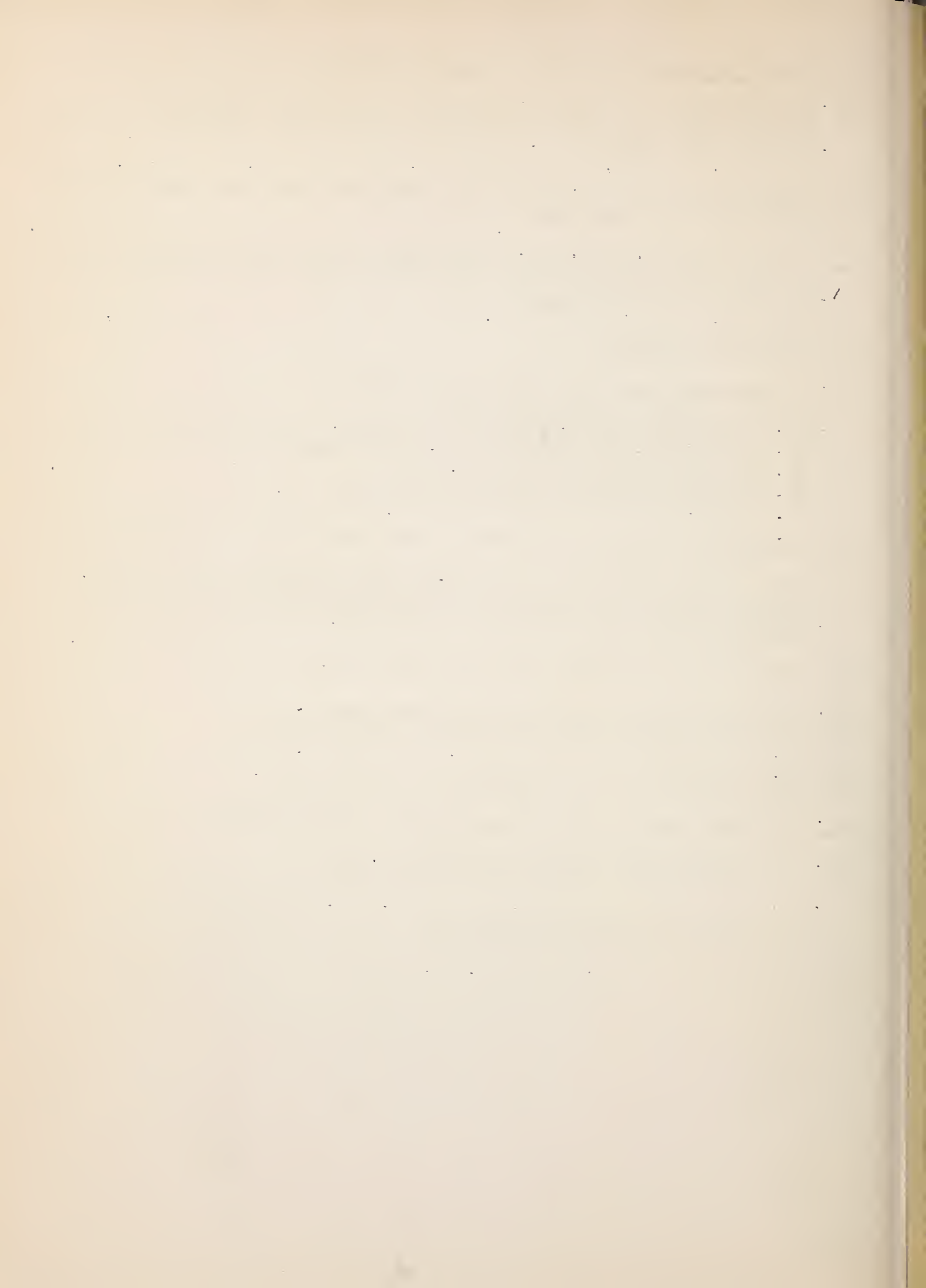


1. Juglans nigra L. - Black Walnut
2. United States and Canada. Western Massachusetts to southern Ontario, southern Michigan, southeastern Minnesota, central and northern Nebraska, central Kansas, eastern Oklahoma, southward to western Florida, central Alabama, Mississippi, Louisiana and Texas.
3. Rich bottoms and fertile hillsides. Humid regions. Ash, hackberry, basswood, elm, oaks, etc.
4. A tree, frequently 100 feet high, thick limbs spreading gradually and forming a comparatively narrow, shapely, round-topped head.
5. Long taproots penetrating to a depth of 10 to 15 feet. In Nebraska to a depth of 5 feet or more. Not windfirm.
6.
  - a. Moist sites, porous subsoil, not too wet. Somewhat drought-resistant.
  - b. Rich, deep soils containing humus, sandy loams and clays, calcareous soils, subsoils well drained. Stiff subsoil retards growth.
  - c. Not resistant to moderate alkali unless water is present. pH 7.3 to 8.0. Acid soils not favorable.
  - d. From sea level to 5000 feet above sea level.
  - e. Temperature range from -30 degrees to 115 degrees F. Damage from late spring frost is greater on the poorer soils.
  - f. Intolerant. During the first years it will bear considerable shading from the side.
7. Moderate resistance to disease or insects.
8. Fruit matures in fall, abundant crops, high fertility. Collection easy by beating down the nuts. Germinates evenly after 3 to 4 weeks from time of planting. Easily handled in the nursery. Seed should be protected from rodents from time of planting to completion of germination period.
9. A soil binder and provides protection from blowing. Useful only in moist places.
10.
  - a. Value of wood high. Lumber, posts and special uses.
  - b. Heavy, hard, strong, rather coarse-grained, very durable, rich, dark brown heartwood.
11. Value to wildlife for food, mainly squirrels.
12. 2-0 or 2-1 rooted stock for spring planting. Easily handled. Broken or torn roots should be carefully pruned with a sharp knife so as to make a clean, smooth wound which will heal readily.
13. Nuts of high value for food. Walnut is toxic to other tree and shrub growth and usually only grass is found directly underneath the crown where the roots are spread.
  - a. No palatability information.



1. Juniperus monosperma Sarg. - One-seed Juniper
2. United States and Mexico. East base of the Rocky Mountains from Wyoming, Colorado, western Oklahoma, western Texas, New Mexico, Arizona, Utah and into Mexico.
3. Desert plains and mountains. Pinon belt associated with other juniper, ponderosa pine, oaks, etc.
4. A tree, occasionally 40 to 50 feet high, short, stout branches forming an open, very irregular head. More often a much branched shrub, sometimes only a few feet high.
5. Taprooted, windfirm.
6.
  - a. Drought-resistant. Well drained soils.
  - b. Dry, rocky, or gravelly soils.
  - c. Moderately alkali-resistant. Calcareous and circumneutral soils.
  - d. 3500 to 8000 feet elevation above sea level.
  - e. From -30 degrees to 110 degrees F.
  - f. Tolerant in youth to intolerant in age.
7. Resistant to disease and insects. Some borer damage in old trees.
8. Fruit matures October, crops usually heavy, fertility fair to good. Easily collected and cleaned. Seed usually stratified for 3 weeks. Germination usually even after 3 or 4 weeks.
9. Valuable as a watershed cover and soil binder.
10.
  - a. Wood of high value for fuel, posts, poles.
  - b. Heavy, slightly fragrant, light reddish brown.
11. High value as food and good shelter for wildlife.
12. 1-1 stock suitable for spring planting. Easily handled.
13.
  - a. Palatability: cattle, low; sheep, low.

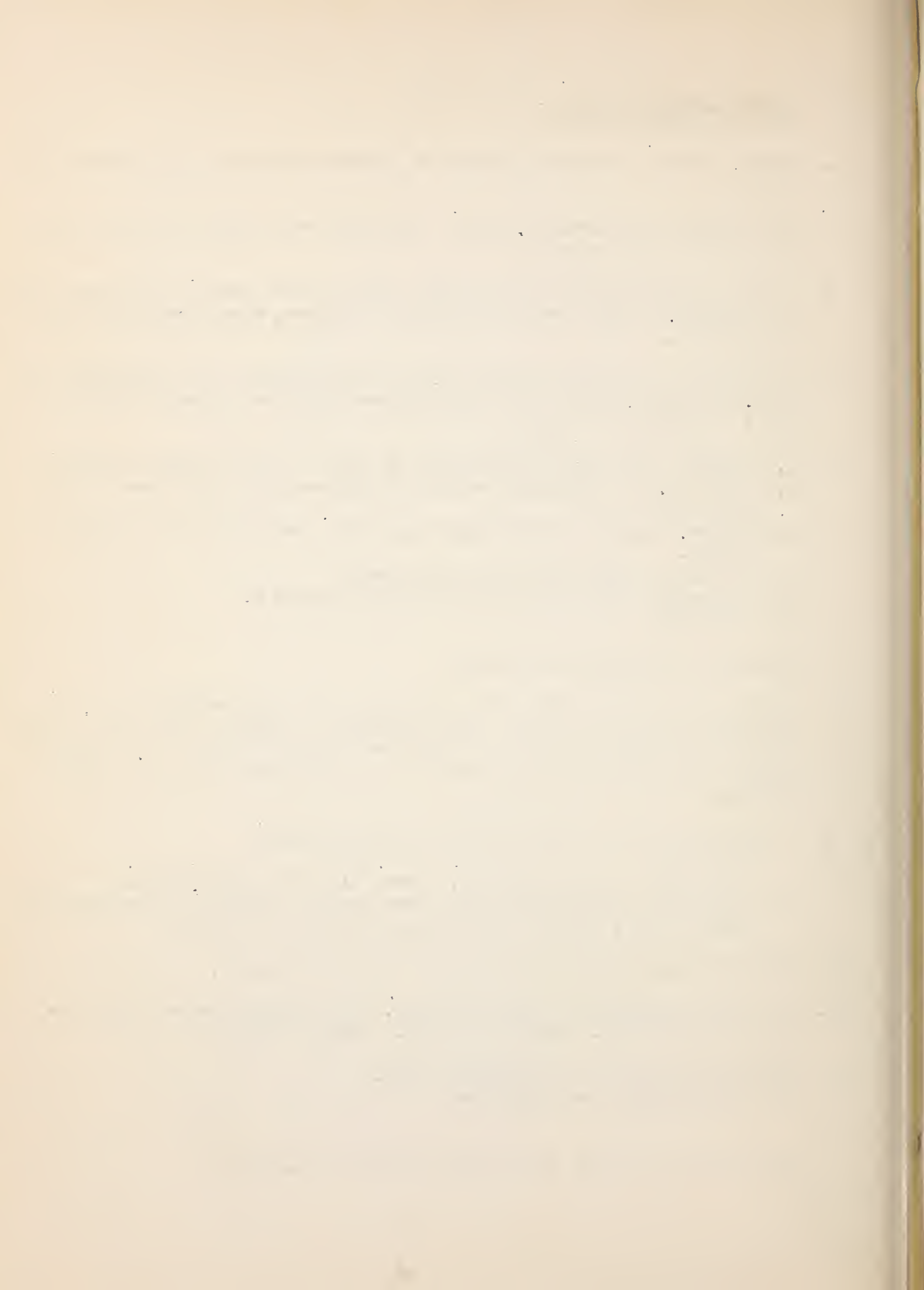
References - 1, 13, 7, 21, 22, 40.





1. Maclura pomifera Schn. - Osage-Orange  
(Toxylon pomiferum Rafn.)
2. United States. Southern Arkansas to southern Oklahoma and southward in Texas.
3. Rich bottoms and fertile slopes. Associated with oaks, elms, and hickories in the humid regions.
4. A tree, sometimes 50 to 60 feet tall with a short trunk, and stout, erect, ultimately spreading branches forming a handsome, open, irregular, round-topped head.
5. Combination of tap and lateral roots, wide-spreading and penetrating to depths of 4 to 5 feet or in fine textured soils to a depth of 10 to 20 feet. Windfirm.
6.
  - a. Prefers ample soil moisture but is able to stand extreme aridity.
  - b. Rich, fertile alluvials or slopes preferred, but will grow on most any soil.
  - c. Prefers neutral and slightly acid soils, but will grow in moderate alkali.
  - d. From 500 to 6000 feet above sea level.
  - e. Temperature extremes from -30 to 120 degrees F.
  - f. Tolerant.
7. Resistant to insects and disease.
8. Fruit ripens in the fall, crops are heavy and seed fertility is high. Collection by hand is easy. Seed difficult to extract from fruit. Germination is fairly prompt and plants are easily handled in the nursery. May be propagated from root-cuttings and young wood-cuttings. Suckers readily.
9. A valuable plant for wind-breaks and soil binding.
10.
  - a. High value to wood products, posts, ties, and wheel-stock.
  - b. Wood heavy, exceedingly hard, very strong, flexible, coarse-grained, very durable, bright orange turning brown on exposure.
11. Provides excellent shelter and some food for wildlife.
12. 1-0 stock suitable for field planting. Not readily secured from cuttings in the field. Suckers readily. Spring planting.
13. An excellent hedge and windbreak plant.
  - a. Palatability: rabbits, low.

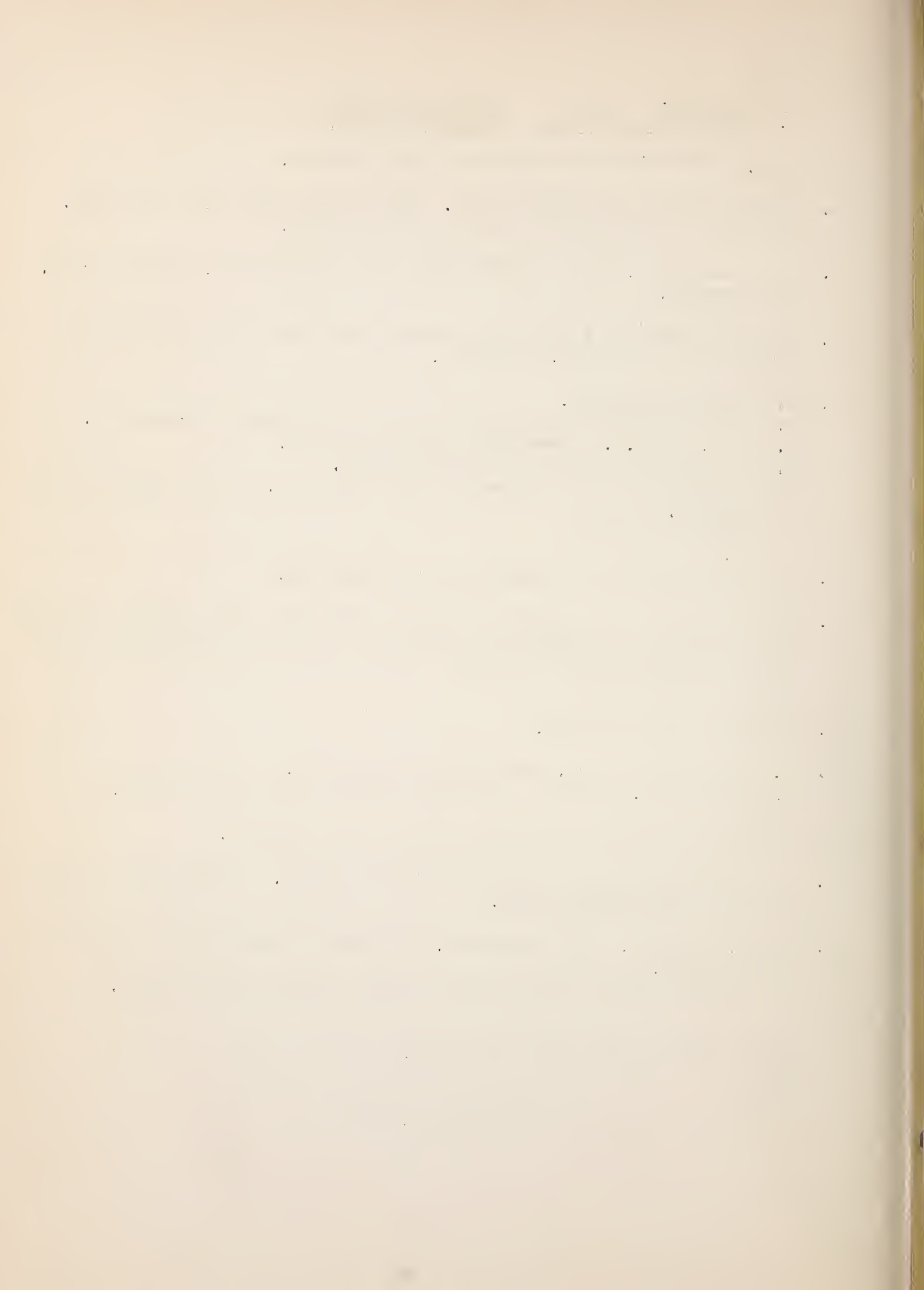
References - 1, 2, 3, 9, 11, 13, 5, 16, 22, 25, 40.



1. Morus alba L.                                      White Mulberry  
a. Morus alba tartarica                              Russian Mulberry
2. Asia, Naturalized throughout the United States.
3. Rocky hillsides and bottom lands. Naturalized from Asia about 1875. Escapes to bottoms mingling with oak and maples.
4. Low, bushy tree, 30 to 40 feet tall, with a low, broad, rounded crown. Dense growth.
5. Tap and lateral roots spreading widely throughout the soil and to a depth of 10 to 20 feet. Windfirm.
6. a. Drought-resistant.  
b. Best on rich loams but grows on sands and clays, not exacting.  
c. pH 8.1 to 8.4. Moderately alkali-resistant.  
d. Sea level to 7500 feet above sea level.  
e. Temperature range 0 degrees to 100 degrees F. Cannot endure severe winters.  
f. Tolerant of shade.
7. Comparatively free of insect attack and disease.
8. Fruit ripens in June, crops are heavy, fertility good. Easily collected but difficult to separate the seeds from the pulp. Germination prompt, plants easily handled in nursery. Cutting may be used but is not entirely satisfactory.
9. Valuable for windbreaks.
10. a. Wood of low value, used for fuel and posts.  
b. Wood heavy, elastic, moderately strong, and coarse-grained.
11. Valuable as food for wildlife, provides some shelter.
12. 2-0 stock suitable for field planting in spring. Cuttings may be used but are not as satisfactory.
13. Shade, and food. Many varieties. A trashy or messy tree in cities and about houses.  
a. Palatability: cattle, high; horses, medium; sheep, medium.

*Morus alba tartarica* the most hardy.

References - 1, 2, 9, 5, 16, 19, 22, 30, 40.



1. Morus microphylla Buckl. - Mexican Mulberry  
(Morus celtidifolia H.B.K.)
2. United States and Mexico. Western Texas, southern New Mexico and southern and central Arizona.
3. Dry limestone hills, mountain canyons, and mountain sides. Covillea and pinon belt associated with oaks, pinon and juniper.
4. A tree, sometimes 15 to 20 feet high; spreading, rounded top.
5. Deep, wide-spread root system, windfirm.
6.
  - a. Extremely drought-resistant.
  - b. Rocky, sandy loams, rather indifferent.
  - c. Moderately alkali-resistant. Calcareous soils.
  - d. 1000 to 6000 feet elevation above sea level.
  - e. From -10 degrees to 120 degrees F.
  - f. Intolerant.
7. Resistant to disease and insects.
8. Fruit matures in August, crops moderately abundant, easily collected on canvas, but available only short time due to birds. Fertility fair. Nursery production good.
9. A fair soil binder on dry sites.
10.
  - a. No value to wood.
  - b. Heavy, hard, close-grained, dark orange color.
11. High value as food and shelter to wildlife.
12. 1-0 rooted stock easily handled for spring planting.
13.
  - a. Palatability: cattle, high; rabbits, high.

References - 13, 22, 40.



1. Parryella filifolia Torr. & Gray -
2. Western United States.
3. Dry hillsides and mesas, sand dunes. Artemisia and pinon belts; pinon, juniper, atriplex, etc.
4. Small shrub 2 to 6 feet high.
5. Fine, fibrous roots, windfirm.
6.
  - a. Extremely drought-resistant.
  - b. Sandy soils.
  - c. Moderately alkali-resistant.
  - d. 2000 to 7000 feet above sea level.
  - e. From -30 degrees to 130 degrees F.
  - f. Intolerant.
7. Attacked by rust in Shiprock Nursery.
8. Heavy seed production, matures in August and September, easily collected, fertility high. Readily handled in the nursery. Germinates evenly after one week.
9. Soil and sand binder on dry sites.
10.
  - a. No value to wood.
11. Some value to wildlife as food and shelter.
12. 2-0 rooted stock for field planting in the spring. Easily handled.
13.
  - a. Unpalatable to livestock.

References - 22 and 40.





1. Parthenocissus quinquefolia Planch. - Virginia Creeper  
(Ampelopsis quinquefolia Michx.)  
(Psedera quinquefolia (L.) Greene).
2. North America. New England to Florida and Mexico, west to Ohio, Illinois and Missouri.
3. Moist places along streams and in woods, associated with oaks, maples, elms, etc.
4. A high climbing bush or vine.
5. No information.
6.
  - a. Requires good moisture conditions.
  - b. Deep, rich soils, will grow on other soils.
  - c. Moderately alkali-resistant. Circumneutral soils.
  - d. Sea level to 8000 feet above sea level.
  - e. Temperatures -30 degrees to 120 degrees F.
  - f. Intolerant.
7. Resistant to disease and insects.
8. Heavy crops of fruit in August to December, easily gathered, high fertility. Germination high, easily grown from seed in nursery. Propagated from cuttings.
9. A soil binder in moist places. Covers the ground rapidly and thoroughly.
10.
  - a. No value to wood.
11. Valuable as food and shelter to wildlife.
12. Easily planted in the field as 1-0 or 2-0, rooted stock, 2-0 stock probably most desirable.
13.
  - a. No palatability information.

References - 1, 2, 14, 22.



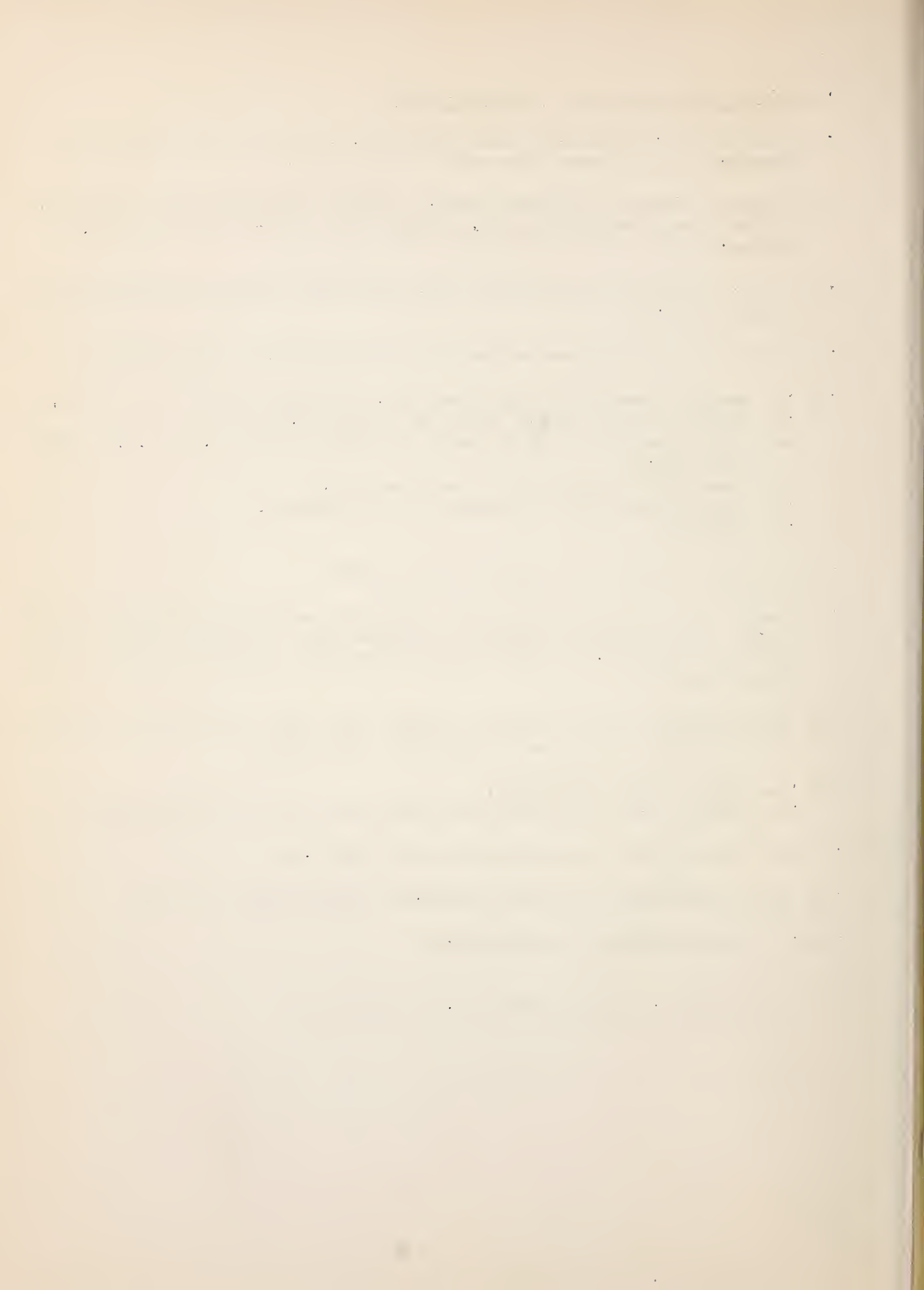
1. Picea engelmannii Engelm. - Engelmann Spruce
2. Canada and United States. Alaska, Alberta, British Columbia, southward in the interior mountains to southern New Mexico and central Arizona.
3. High mountain slopes, canyons and benches. North slopes. Associated with Alpine fir, Douglas fir, limber pine, bristlecone pine, white fir, ponderosa pine, aspen, lodgepole pine.
4. A tree, sometimes 120 feet tall, with spreading branches producing a narrow, compact, pyramidal head.
5. Lateral roots penetrating to shallow depths, not windfirm.
6.
  - a. Dry to wet sites, but does poorly on porous soils.
  - b. Retentive, fine loams, deep, rich, alluvial soils, occasionally on residual soils.
  - c. Does not tolerate much alkali, best in neutral and acid soils. Sub-acid soils.
  - d. From 5000 to 12,000 feet above sea level.
  - e. Temperature range from -40 degrees to 100 degrees F.
  - f. Very tolerant.
7. Moderate resistance to disease and insects.
8. Cones mature in August, fairly abundant, moderately fertile seed. Moderately difficult to collect. Seed germinates evenly in three weeks' time. Seed bed treatment required to control damping off. Shade during first year and part of second.
9. Most valuable as a watershed cover.
10.
  - a. Used for poles, posts, fuel, lumber.
  - b. Light, soft, not strong, close-grained, pale yellow tinged with red.
11. Valuable as food and good cover for wildlife.
12. 2-2 rooted stock for spring planting. Easily handled in the field.
13.
  - a. No palatability information.

References - 1, 6, 10, 13, 15, 35.



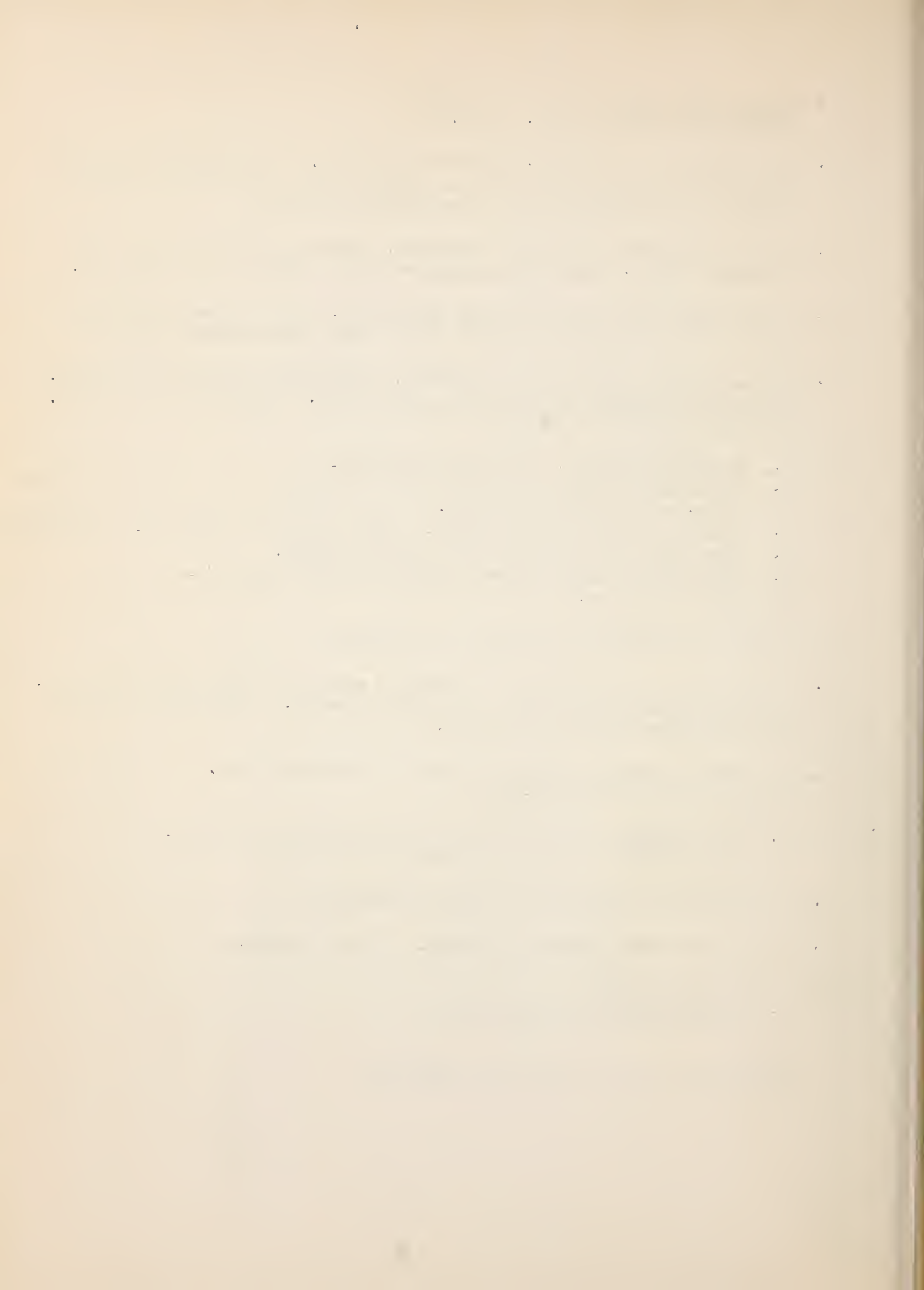
1. Picea pungens Engelm - Colorado Spruce
2. United States. Colorado and eastern Utah, southern and northwestern Wyoming, and southward into northern New Mexico.
3. Banks of streams and first benches. Pinon, ponderosa pine, and spruce-aspen belts. Engelmann spruce, alpine fir, narrow-leaf cottonwood, willows.
4. A tree, usually 80 to 100 feet tall, pyramidal crown becoming thin and ragged in age.
5. Many lateral roots penetrating the soil shallowly. Not windfirm.
6.
  - a. Prefers abundant supply of moisture, but will grow on drier sites.
  - b. Moist, rich, gravelly, sandy or rocky soils.
  - c. Not resistant to alkali, acid to neutral soils pH 6.0 - 7.0. Sub-acid soils.
  - d. From 6000 to 11,000 feet above sea level.
  - e. Temperature range -40 degrees to 100 degrees F.
  - f. Tolerant.
7. Moderate resistance to disease and insects.
8. Cones mature in August, moderate abundance, moderately difficult to collect. Seed germinates evenly in 3 weeks time. Seed bed treatment to control damping off. Shade during first year and part of second. Winter protection.
9. Not of great value in erosion control other than watershed protection or use in windbreaks because of moisture requirement.
10.
  - a. Poles, posts and lumber.
  - b. Light, soft, close-grained, weak, pale brown or nearly white.
11. Of value as food and good shelter for wildlife.
12. 2-2 rooted stock for spring planting. Do not prune the tops.
13.
  - a. Palatability: No information.

References - 1, 2, 10, 13, 14, 15, 20, 21, 34.



1. Pinus edulis Engelm. Pinon  
(Pinus cembroides edulis. Voss.)
2. United States and Mexico. Northern Colorado, to extreme western Oklahoma, western Texas, westward to eastern Utah, southwestern Wyoming, northern and central Arizona into northern Mexico.
3. Desert foothills, mesas and mountains. Pinon, ponderosa pine, and artemisia belts. Junipers, ponderosa pine, Douglas fir, oaks, etc.
4. A tree often 40 to 50 feet high with short, erect branches forming a narrow head, frequently divided with a low, round-topped head.
5. Wide-spreading laterals and taproots, penetrating the soil shallowly. Moderately windfirm but less than most pines. Tap  $1\frac{1}{2}$  to 2 feet long. Laterals spread 5 to 15 feet.
6.
  - a. Drought-resistant. Well drained soils.
  - b. Deep, well drained, gravelly sands or loams, also on shallow, rocky soils, on fine grained adobe.
  - c. Moderate resistance to alkali. Soil neutral or alkaline. Calcareous.
  - d. From 4000 feet to 9000 feet above sea level.
  - e. Temperature range from -30 degrees to 120 degrees F.
  - f. Very intolerant.
7. Moderate resistance to insects and disease.
8. Cones mature in September and October, crops abundant every few years, easily collected on canvas, fertility moderate. Germinates promptly, plants easily handled in nursery.
9. Of value in erosion control mainly as watershed cover. Prevents soil blowing when established.
10.
  - a. Wood products of fair value for fuel, posts and poles.
  - b. Light, soft, not strong, brittle, pale brown.
11. High value to wildlife for food and shelter.
12. 1-1 rooted stock, spring planting. Easily handled.
13. Nuts used as food.
  - a. No palatability information.

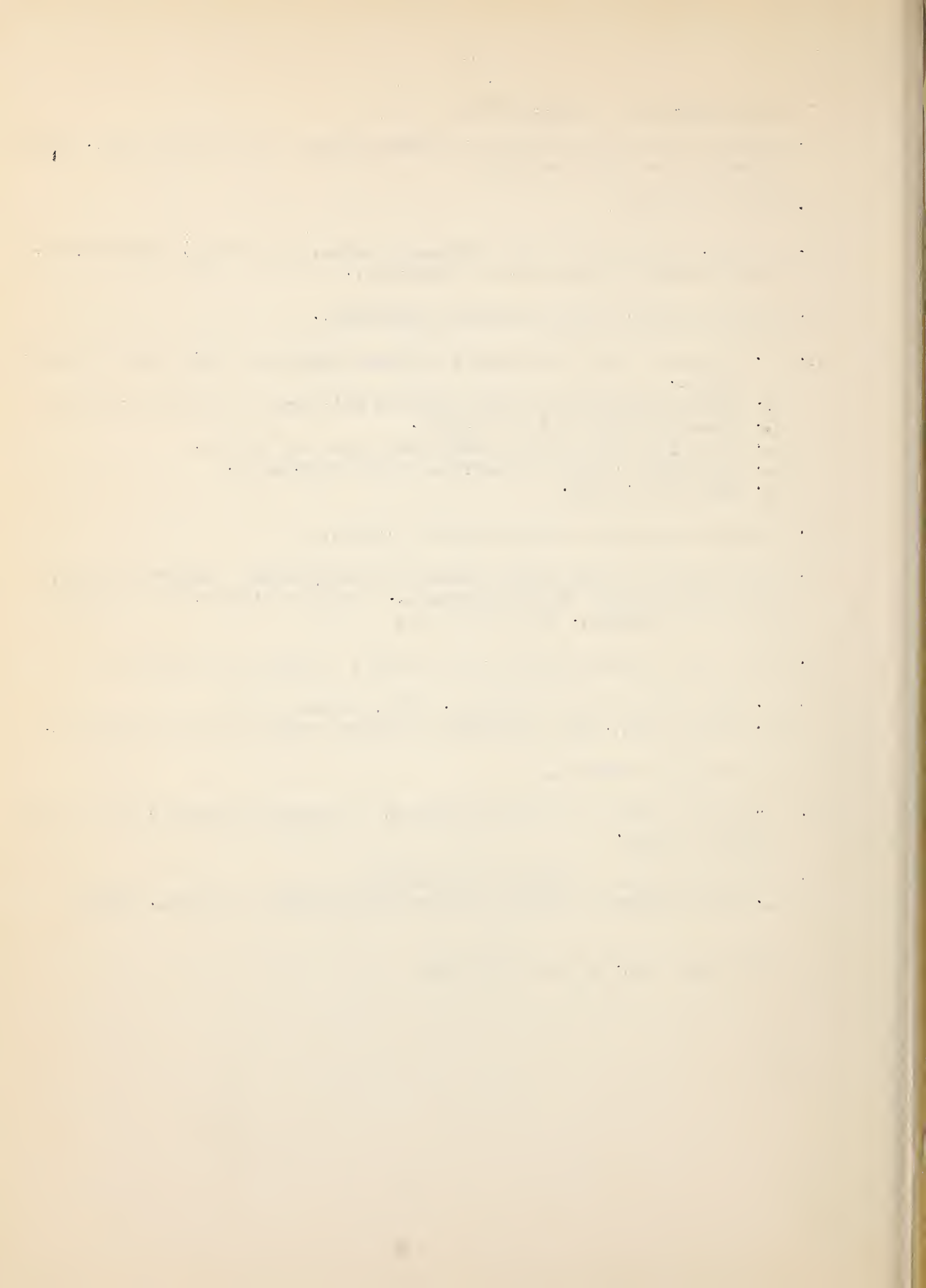
References - 1, 14, 13, 15, 8, 39, 40.





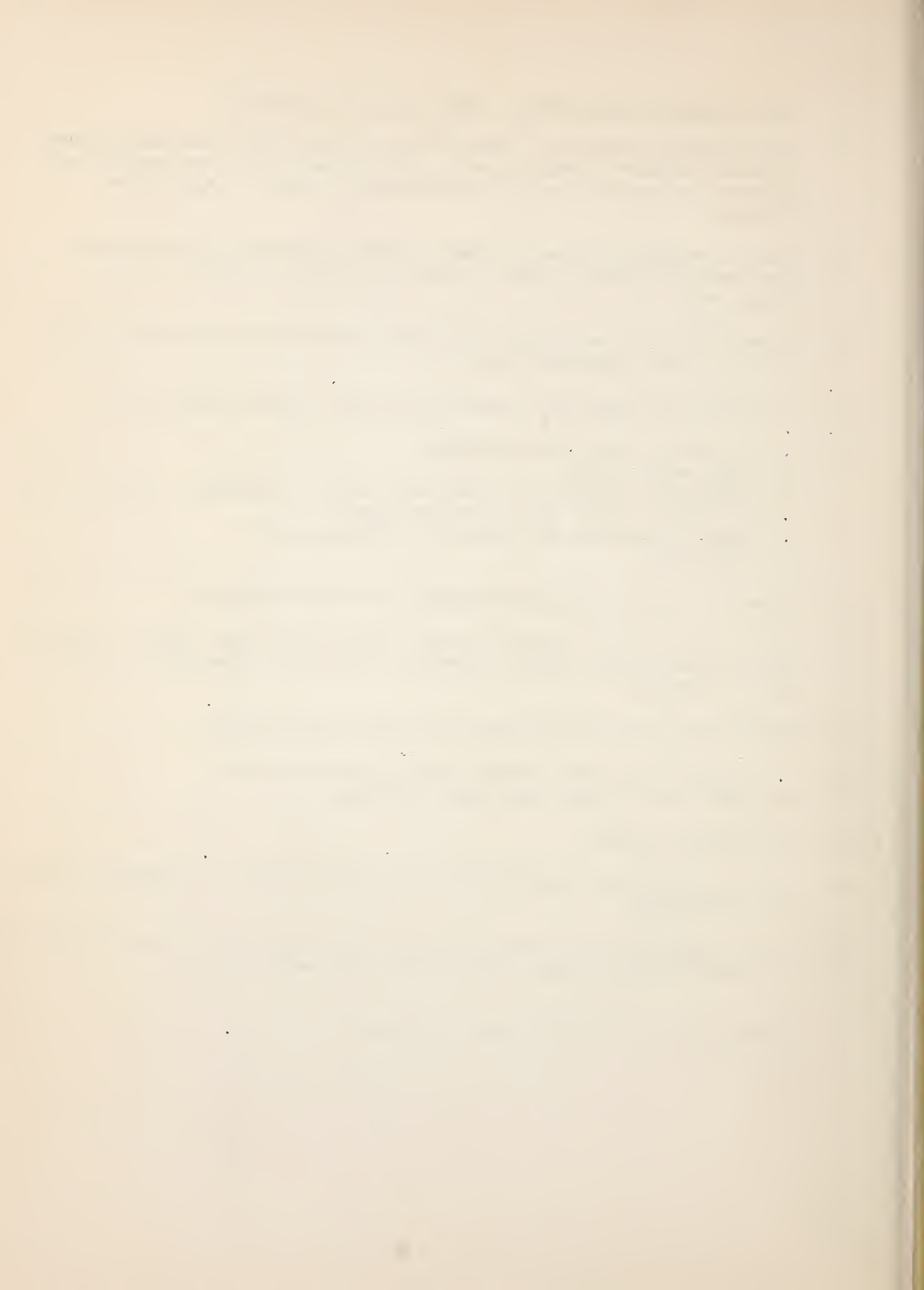
1. Populus alba L. - White Poplar
2. Central and southern Europe to western Siberia and central Asia. Naturalized in the United States.
3. Europe and Asia.
4. A tree, 50 to 60 feet tall, forming a large, spreading, rounded or irregular crown of large crooked branches.
5. Shallow lateral roots, moderately windfirm.
6.
  - a. Prefers a constant abundant moisture supply but will grow on drier sites.
  - b. Rich, moist, alluvial soils best but will grow on nearly any soil.
  - c. Moderate resistance to alkali.
  - d. Found from sea level to 8000 feet above sea level.
  - e. Temperature range -40 degrees to 130 degrees F.
  - f. Very intolerant.
7. Moderate resistance to insects and disease.
8. Seed matures in May, crops medium, fertility high. Collection easy. Germination prompt the first season. Easily handled in the nursery by use of cuttings. Suckers freely.
9. Soil binder where cutting is not active. Temporary windbreaks.
10.
  - a. High value of wood locally. Fuel, posts, poles.
  - b. Light, soft, weak, difficult to split, reddish yellow heartwood.
11. Low value to wildlife.
12. 1-0 rooted stock or hardwood cuttings for spring planting in the field, easily handled.
13. Use male trees. A number of varieties.
  - a. Palatability: cattle, medium; sheep, medium; rabbits, medium.

References - 1, 2, 11, 9, 19, 40.



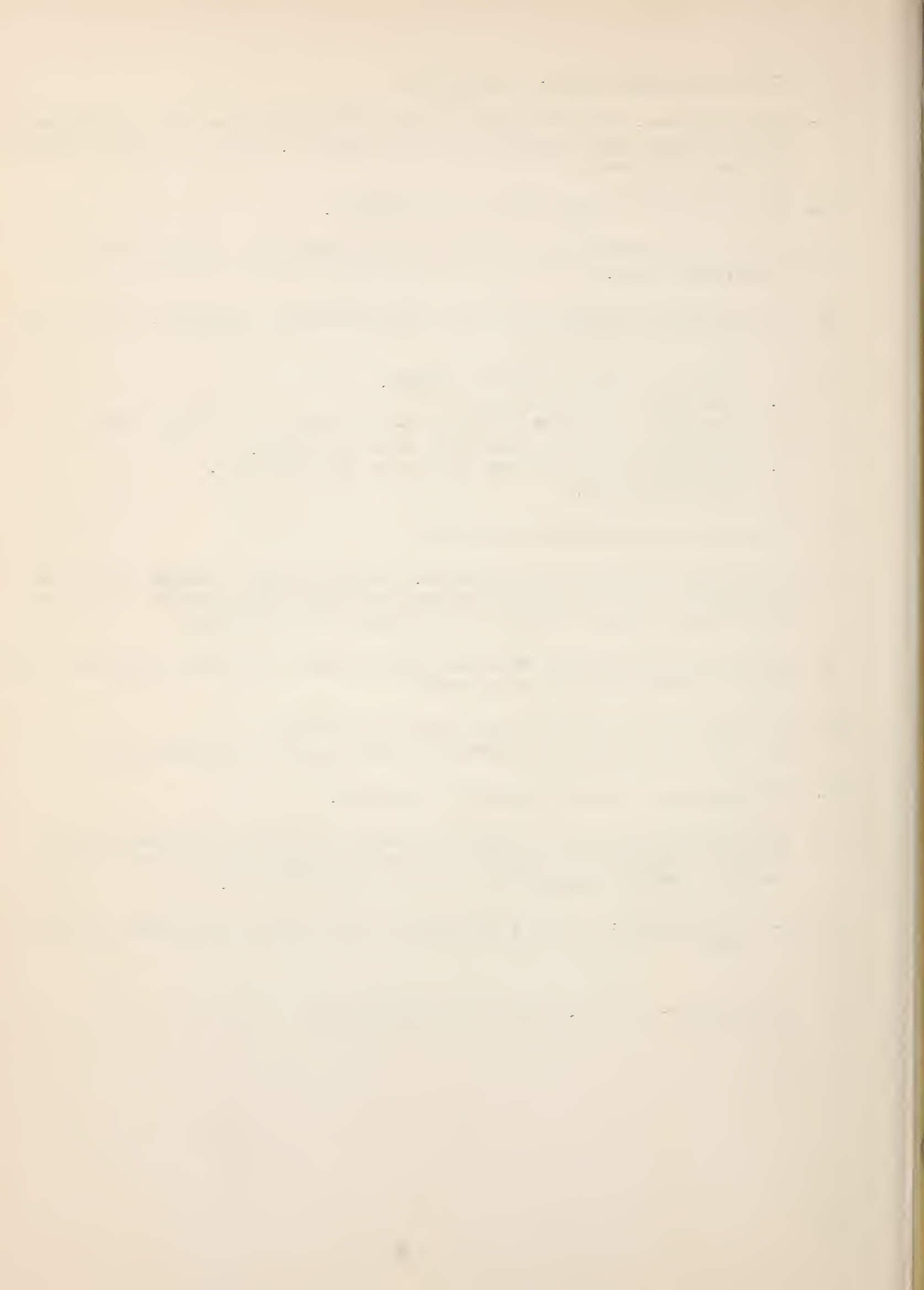
1. Populus angustifolia James. -- Narrow-leaved Cottonwood
2. United States and Mexico. Black Hills of South Dakota and Northwestern Nebraska, westward through Wyoming, Montana and Idaho, Washington, and southward to central Nevada, southwestern New Mexico and northern Arizona.
3. Banks of streams or on moist flats. Covillea upward to the spruce-aspen belt. Willows, alders, alpine fir, engelmann spruce, blue spruce, etc.
4. A tree, 50 to 60 feet high, with slender erect branches forming a narrow and usually pyramidal head.
5. A shallow root system of a tap and laterals. Moderately windfirm.
6.
  - a. Requires an ample water supply.
  - b. Rich, moist soils.
  - c. Moderately resistant to alkali when water is abundant. pH 6.9 - 7.2.
  - d. At 5000 to 10,000 feet above sea level.
  - e. Temperature range -35 degrees to 100 degrees F.
  - f. Intolerant.
7. Moderate to poor resistance against insects and disease.
8. Fruit ripens in May, abundant crops, medium fertility. Easily collected by hand from ground, plants adaptable to nursery production. Cuttings most economical.
9. Soil binding and desilting where cutting is not active.
10.
  - a. Wood of high value locally, fuel, posts and lumber.
  - b. Light brown, soft, weak, thick sapwood.
11. Low wildlife values.
12. 1-0 rooted stock or rooted cutting for spring planting. Hardwood cutting most economical.
13. Especially subject to damage when small or until out of reach of livestock.
  - a. Palatability: cattle, low; horses, low; sheep, low.

References - 1, 2, 5, 12, 13, 14, 15, 40.



1. Populus sargentii Dode. - Cottonwood
2. United States. Foothill region of the Rocky Mountains from Saskatchewan to New Mexico, and ranging east to the Dakotas, western Nebraska, Kansas, Oklahoma and Texas.
3. Stream banks and moist places with willows.
4. A tree 60 to 90 feet tall, with erect and spreading branches forming a broad, open head.
5. Root system of shallow laterals, not particularly windfirm. Penetrates to a depth of 1 to 5 feet.
6.
  - a. Requires an ample moisture supply.
  - b. Rich soils of the bottoms.
  - c. Moderately resistant to alkali in the presence of ample water.
  - d. Ranges from 2000 to 9000 feet above sea level.
  - e. Temperature extremes -30 degrees to 110 degrees F.
  - f. Very intolerant.
7. Does not resist insects or disease.
8. Seed matures in May, crop abundant, fertility high. Easily collected, germination high if planted the same season. Plants easily handled in the nursery. Most satisfactorily secured from cuttings.
9. Suitable as a filler on bars and stream banks. Inferior to willows where active cutting by water is present.
10.
  - a. Valuable locally for fuel, posts and lumber.
  - b. Dark yellowish brown heartwood; thick sapwood is nearly white.
11. Furnishes some food and cover for wildlife.
12. 1-0 rooted stock, or 1-0 rooted cuttings for winter or spring plants. Hardwood cuttings are satisfactory for field planting and are more economical. Pulled wildings are suitable for field use.
13.
  - a. Palatability: cattle, medium; horses, medium; sheep, low; rabbits, low.

References - 1, 2, 5, 11, 12, 13, 15, 19, 20.



1. Prunus americana Marsh. - Wild plum
2. United States. In the Rocky Mountain region along the eastern foothills of Colorado to northern New Mexico, northeastern Utah, and elsewhere in the United States.
3. Moist bottomlands, dry uplands, low mountain slopes, and moist sites of foothills and mountains. Associates numerous because of range and distribution.
4. A shrub or tree from 3 to 6 feet high or 20 to 35 feet in height, with many spreading branches forming a broad, graceful head. In the Rocky Mountain region it is found as low thickets.
5. Wide-spreading lateral roots and taproot to a depth of 3 to 4 feet. Wind-firm.
6.
  - a. Requires considerable soil moisture throughout the year.
  - b. Rich, moist soils best, although it will grow in drier, sandy loams. Rarely on dry limestone outcrops.
  - c. Not resistant to alkali. Prefers a neutral to acid soil, pH 6.0 to 8.0.
  - d. Sea level to 8000 feet or possibly higher.
  - e. Temperatures range from -30 degrees to 115 degrees F.
  - f. Very tolerant.
7. Moderately resistant to disease and insects.
8. Seed production heavy, fertility good, easy to gather. Four to five months stratification or plant in early fall for nursery production. Fruit ripe in July to September.
9. Thicket forming habit in this region, together with aggressiveness on the proper sites, makes it useful as a sand binder. Spreads by means of root sprouts. Effective for wind erosion control.
10.
  - a. Wood is of little value.
  - b. Heavy, hard, close-grained, strong, dark rich brown tinged with red.
11. Provides food and shelter for wildlife. Fruit eaten by many kinds of birds, and by humans.
12. 1-0 stock for field planting; do not plant with crowding species in this region nor plant too closely. Spring planting. Difficulty in securing sufficient roots when lifted in the nursery.
13. Fruits valuable for food. Many varieties.
  - a. Palatability: cattle, low; horses, low; sheep, medium.

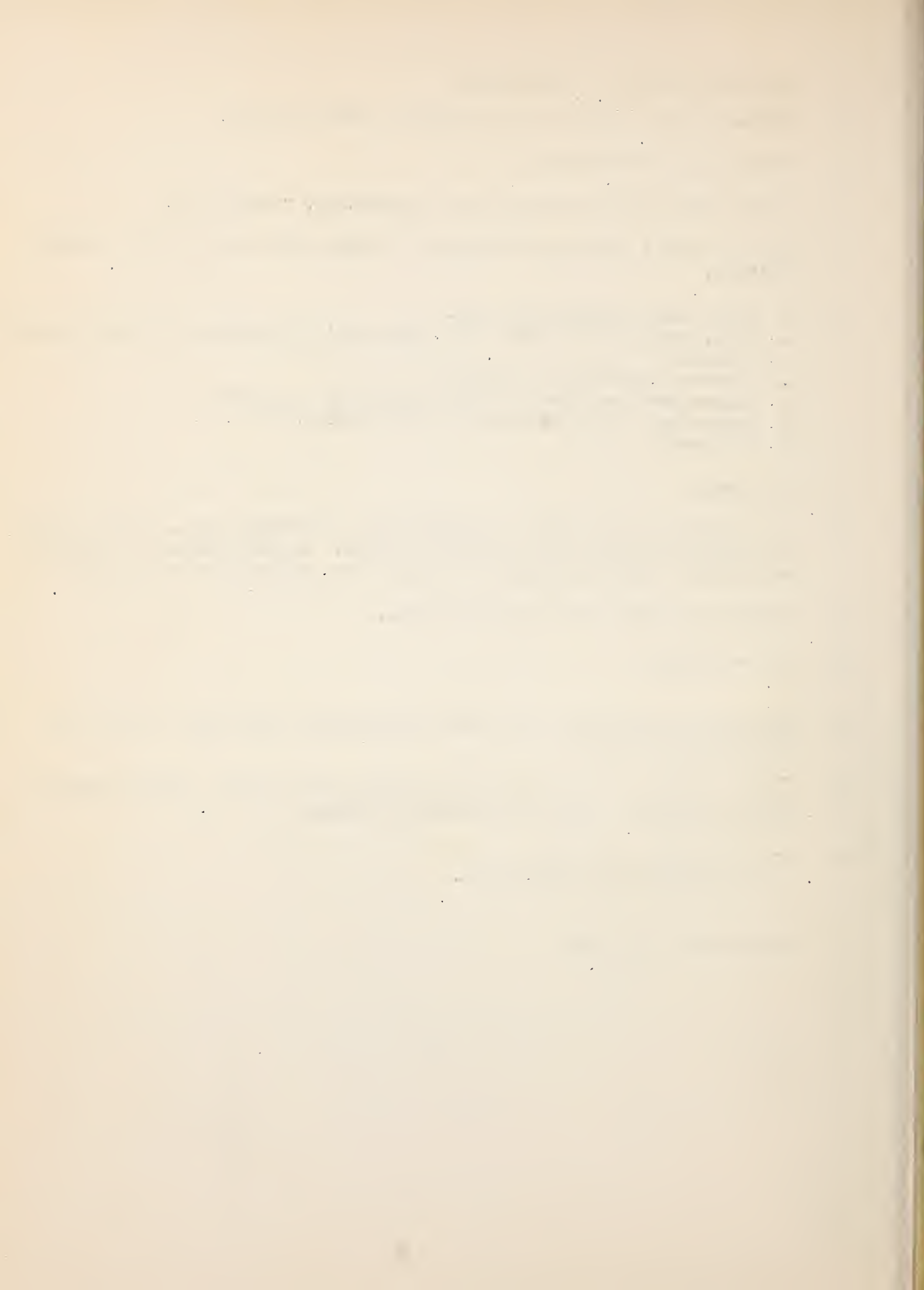
References - 1, 2, 3, 6, 9, 11, 13, 21, 22, 40.





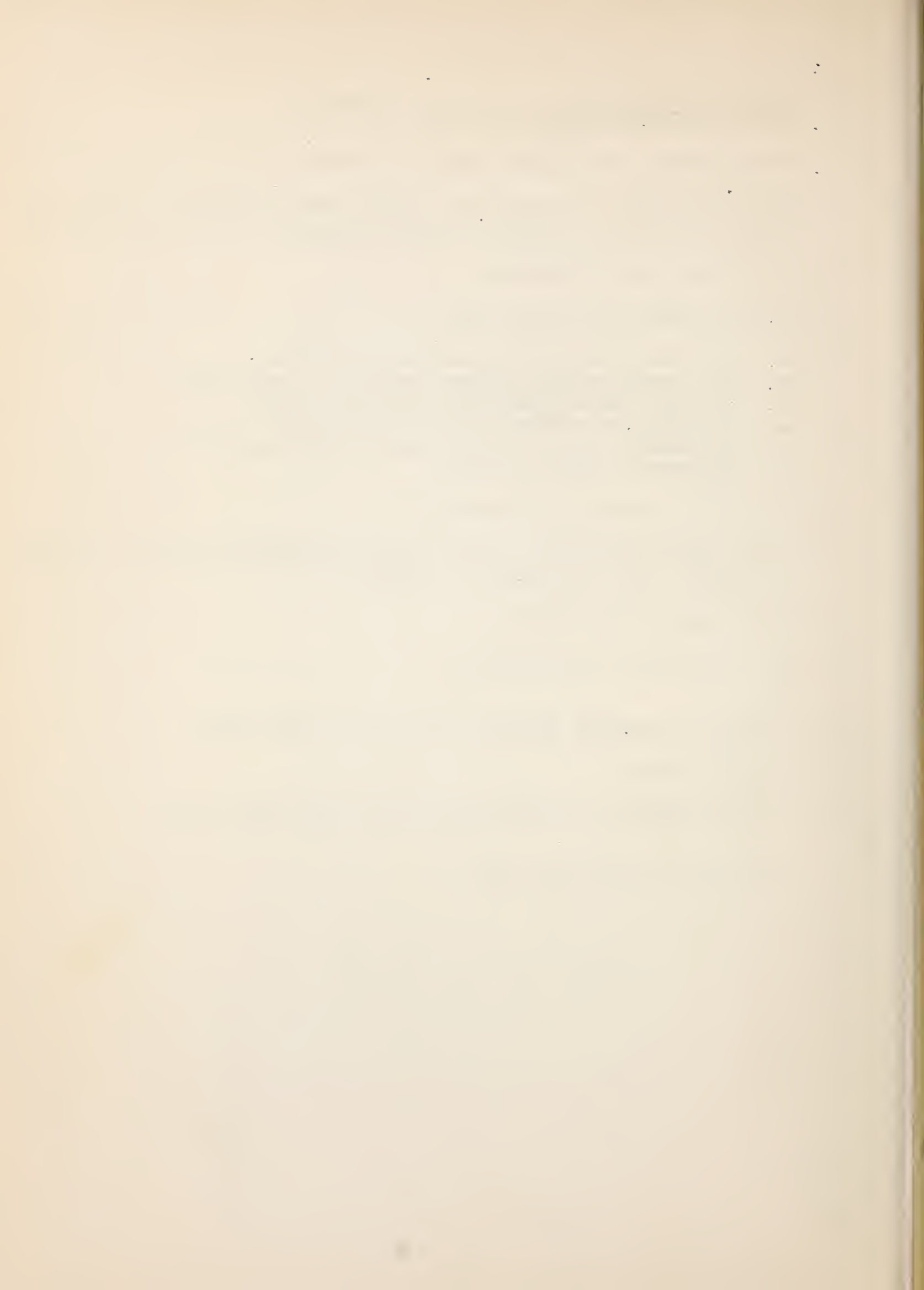
1. Punica granatum L. - Pomegranate
2. Southern Asia. Naturalized in southern United States.
3. Tropical and sub-tropical.
4. A small tree, 20 feet high or more, spreading, rounded top.
5. Tap and lateral roots penetrating to a depth of 3 feet or more. Fairly windfirm.
6.
  - a. Moderately drought-resistant.
  - b. Deep, rather heavy loam. Will grow well in sandy soils under moderate rainfall.
  - c. Moderate resistance to alkali.
  - d. Ranges from sea level to 4000 feet above sea level.
  - e. Temperature range 32 degrees to 130 degrees F.
  - f. Not known.
7. Not known.
8. Fruit matures in the fall, abundant crops, fertility high. Easy to collect by hand, germination somewhat delayed. Readily adapted to nursery production. Suckers freely and layers. May be grown from cuttings.
9. Useful as a soil binder in gully heads.
10.
  - a. Low value.
  - b.
11. High value to wildlife as to food and shelter. The fruit is eaten by many species of birds.
12. Easily handled in the nursery 1-0 or 2-0 rooted stock. Suckers freely. Plant in winter. Hardwood cuttings in spring.
13. Fruit valuable for food.
  - a. No palatability information.

References - 1, 2, 40.



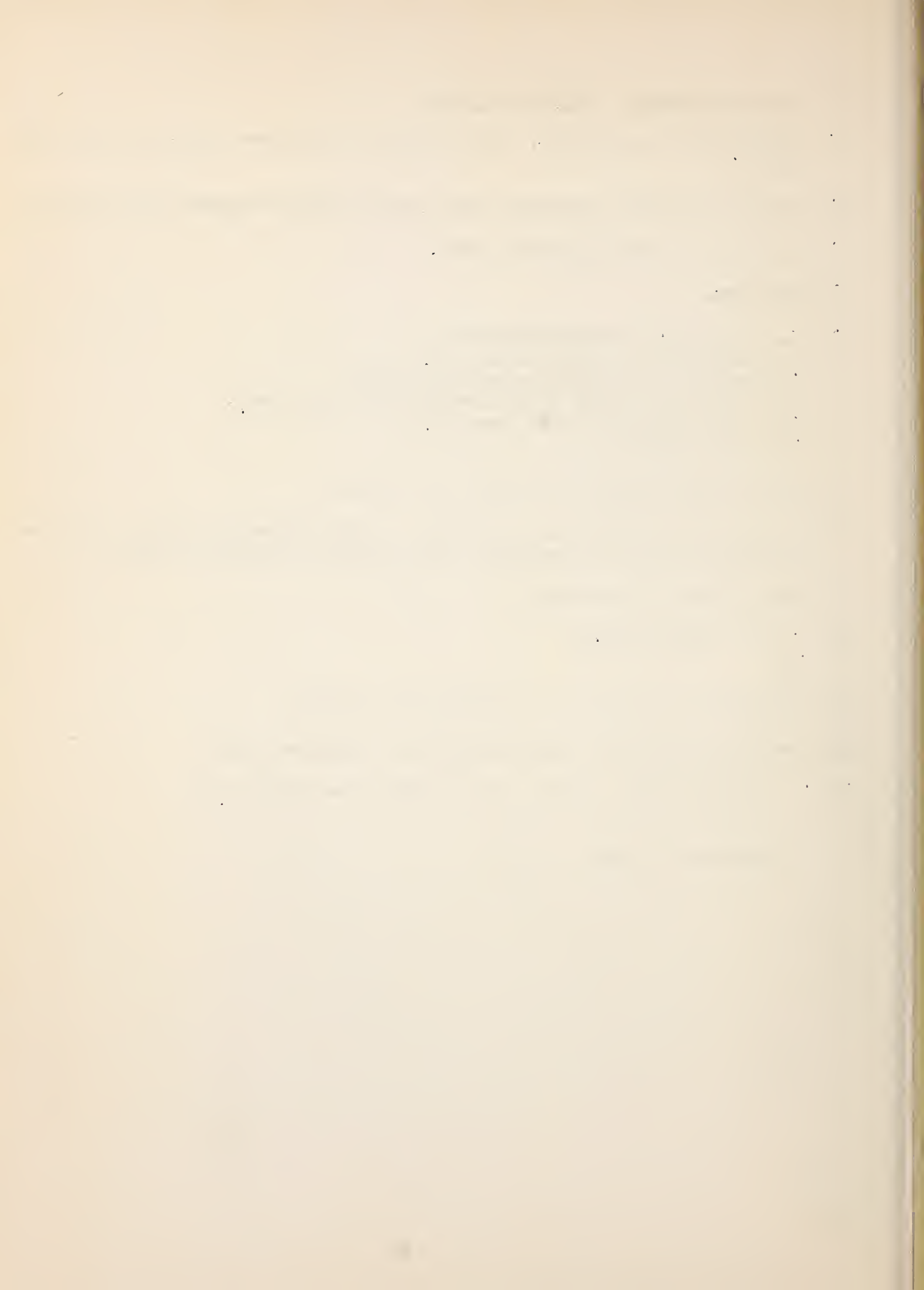
1. Purshia tridentata DC Bitterbrush  
(Kunzia tridentata (Pursh) Spreng.)
2. United States. Washington, Oregon, California to Wyoming and New Mexico.
3. Dry plains, hills and mountains. Pinon, ponderosa pine and spruce-aspen belts. Sagebrush, snowberry, mountain mahogany, service-berry and oak.
4. A spreading shrub to 10 feet.
5. Shallow-rooted but resists wind.
6.
  - a. Dry sites, well drained, never in wet sites.
  - b. Well drained, sandy, cindery, gravelly or rocky soils.
  - c. Moderately alkali-resistant, calcareous soils.
  - d. From 1000 feet to 8000 feet above sea level.
  - e. Temperatures range from -30 degrees to 110 degrees F.
  - f. Intolerant. (Never in shade)
7. Resistant to insects and disease.
8. Fruit matures in August, moderate crops, difficult to collect. Moderate fertility. Easy to propagate in nursery.
9. Soil binder on dry sites.
10.
  - a. No value to wood products.
  - b.
11. Valuable to browsing wildlife and cover for small game.
12. No information.
13.
  - a. Palatability: cattle, high; horses, high; sheep, high.

References - 1, 2, 4, 14, 22.



1. Rhus microphylla - Littleleaf sumac
2. United States and Mexico. Western Texas to southern Arizona, south into Mexico.
3. Desert foothills, associated with creosote bush, mesquite, and catclaws.
4. A small, to large, spreading shrub.
5. Windfirm.
6.
  - a. Dry sites, drought-resistant.
  - b. Indifferent, mainly sandy loams.
  - c. Resistant to alkali, calcareous soils.
  - d. From 1000 to 5000 feet elevation above sea level.
  - e. From 0 degrees to 130 degrees F.
  - f. Intolerant ?
7. Moderately resistant to insects and disease.
8. Moderately abundant seed production, easily gathered by hand. Fair germination if seed is stratified three months or planted in winter.
9. Soil binder on dry sites.
10.
  - a. No value to wood.
  - b.
11. Valuable as food and good shelter for wildlife.
12. 1-0 rooted stock for spring planting. Easily handled.
13.
  - a. Palatability: cattle, low; horses, low; sheep, low.

References - 4, 22.



1. Rhus trilobata Nutt - Lemonade Sumac - Squaw Bush
2. United States, Canada, and Mexico. Ranges from Alberta to Missouri, northern Mexico, and southern Oregon.
3. Stream beds, banks, plains and mountain sides of the Covillea, artemisia and pinon belts. Creosote bush, sagebrush, oaks, pinon, ponderosa pine.
4. A shrub from 2 to 10 feet tall with a rounded appearance and growing in crowded stands.
5. Tap and lateral roots spread about 10 feet and penetrate to 5 feet.
6.
  - a. Extremely drought-resistant.
  - b. Light sandy or rocky loams.
  - c. Moderately alkali-resistant. Calcareous soils.
  - d. Ranges from 1000 to 8000 feet above sea level.
  - e. Temperature extremes -35 degrees to 120 degrees F.
  - f. Tolerant.
7. Fairly resistant to insects and disease.
8. Fruit ripens in the late summer; the crops are poor to excellent depending on season. The seed is not easily collected. Delayed germination. Stratify or plant in winter. 1-0 stock suitable for field planting.
9. A good erosion-control plant as a soil and sand binder.
10. No value for wood.
11. Affords food and good shelter for wildlife. Fruit important to many species of wildlife.
12. 2-0 planting stock for spring planting. 1-0 is largely used.
13.
  - a. Palatability: cattle, low; horses, low; sheep, low.

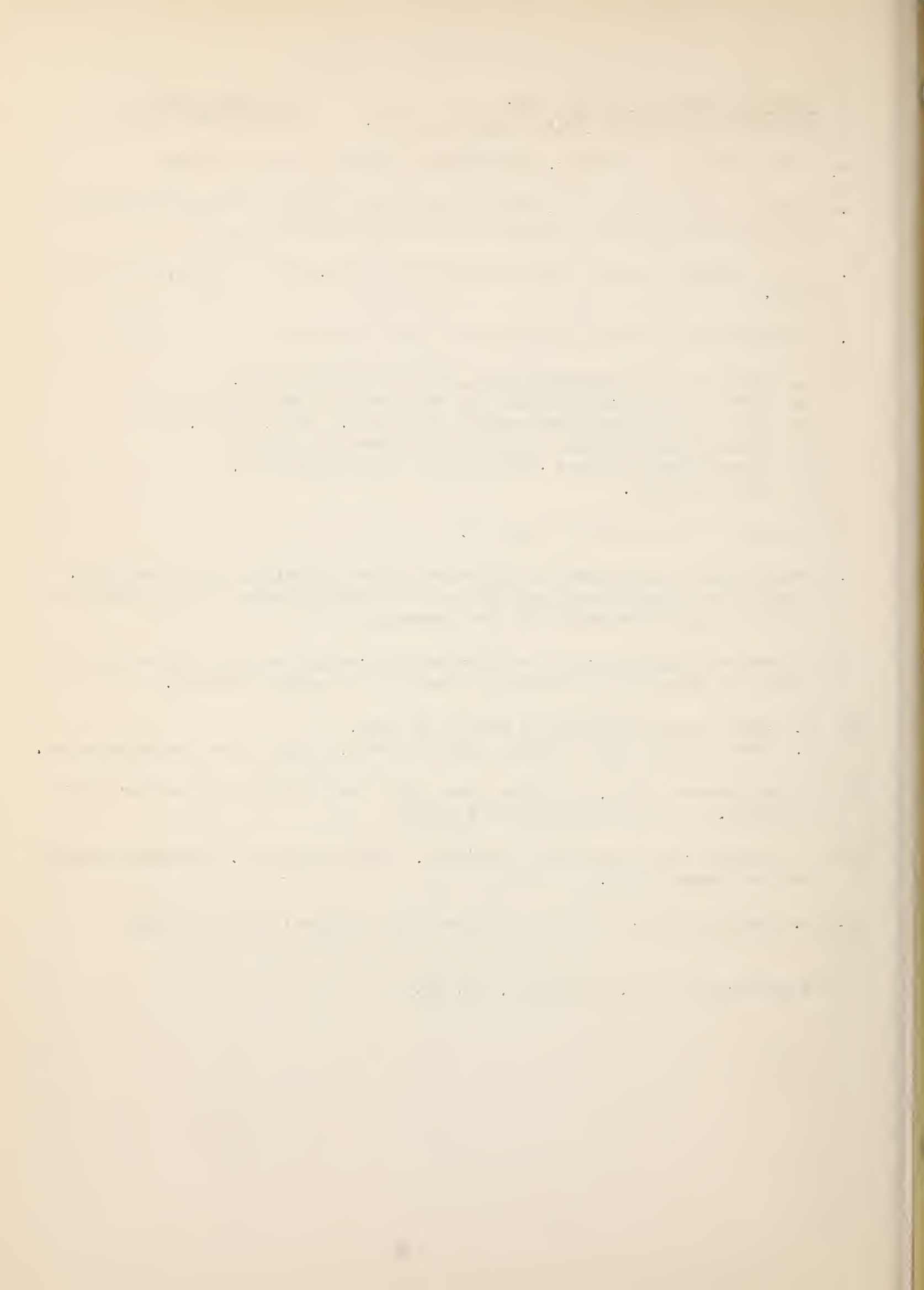
References - 1, 2, 4, 14, 22, 40.





1. Robinia neo-mexicana A. Gray. New Mexico Locust  
Robinia neo-mexicana var. luxurians Dieck. Southwestern Locust
2. United States. Colorado, New Mexico, Arizona, southern Utah.
3. Mountain canyons, plains, streams and north slopes. Pinon and ponderosa pine belts with pinon, juniper, oaks and ponderosa pine.
4. A small shrub or tree attaining 20 to 25 feet, with an open, irregular head.
5. Wide-spreading roots, windfirm and water resistant.
6.
  - a. Moderately drought-resistant, best on moist soils.
  - b. Best on deep, rich soils, but will grow on dry, sandy soils.
  - c. Resistant to moderate amounts of alkali. pH 6.5 to 8.0.
  - d. Found from 4000 feet to 9000 feet above sea level.
  - e. Temperature extremes -25 degrees to 120 degrees F.
  - f. Very tolerant.
7. Resistant to insects and disease.
8. Fruit matures in August to September, moderate crops, good fertility. Germination prompt when seed is treated with sulfuric acid or other methods. Easy to propagate in the nursery.
9. On mountain slopes this species sprouts freely, has abundant horizontal roots and forms dense thickets effective in erosion control.
10.
  - a. Wood valued locally for posts and fuel.
  - b. Wood heavy, hard, strong, close-grained, yellow streaked with brown.
11. A good browse plant, furnishes some food and excellent cover for other wildlife. Seeds eaten by Gambel quail.
12. 1-0 rooted stock for spring planting. Easily handled. Sprouts somewhat but not luxuriantly.
13.
  - a. Palatability: cattle, medium; sheep, medium; rabbits, high.

References - 1, 2, 4, 13, 14, 22, 40.



1. Robinia pseudoacacia L. Black locust
  - a. Robinia pseudoacacia rectissima Raber. Shipmast locust
2. United States. Central and southern Pennsylvania, to northern Georgia, southern Illinois, and westward to the Ozark region of southern Missouri, Arkansas and Oklahoma. Widely naturalized east of the Rocky Mountains, nowhere common.
3. Moist, fertile mountain slopes, streams, rocky, gravelly, alluvial soils. Forms thickets on clay banks. Humid regions with oaks, chestnut, hickory, maple, ash, elm and walnut.
4. A tree, 70 to 80 feet high, with small, brittle, usually erect branches forming a narrow, oblong head. Short-lived.
5. Roots spreading and penetrating to a depth of 5 to 10 feet. Windfirm. Sometimes not windfirm on heavy soils; shallow rooting.
6.
  - a. Moderately drought-resistant, prefers ample soil moisture, but not wet or poorly drained soils. Water table within 10 feet.
  - b. Not exacting as to fertility but prefers limestone soils, brown loams, well drained. Does poorly, or finally dies, on shallow soils or those having hard-pan close to the surface.
  - c. Best on slightly alkaline, non-acid or moderately acid soils. pH 5.00 or better, preferring pH 6.9 to 7.2. Moderately resistant to salt accumulations.
  - d. Sea level to 5000 feet above sea level.
  - e. Temperature range from -30 degrees to 110 degrees F. Is affected by extreme heat or cold.
  - f. Very intolerant.
7. Fast growing trees resistant to locust borer, otherwise highly susceptible to damage. Shipmast variety reported less susceptible to borer damage.
8. Seed production heavy, ripening in September, fertility high. Collection easy because of abundance. Germination is prompt when seed is treated with sulfuric acid or other means. Easy to handle in nursery.
9. Good erosion-control plant, used as a soil binder and in shelterbelts.
10.
  - a. Wood valuable for fuel, posts and lumber.
  - b. Wood heavy, exceedingly hard, strong, close-grained, very durable in contact with the ground, brown or rarely light green.
11. Valuable as a food for quail, mourning dove and certain mammals. Also good cover.
12. 1-0 stock suitable for field planting in the spring. Spreads by suckers. Do not plant on sandy, very dry, very poor, very acid or poorly drained soils.

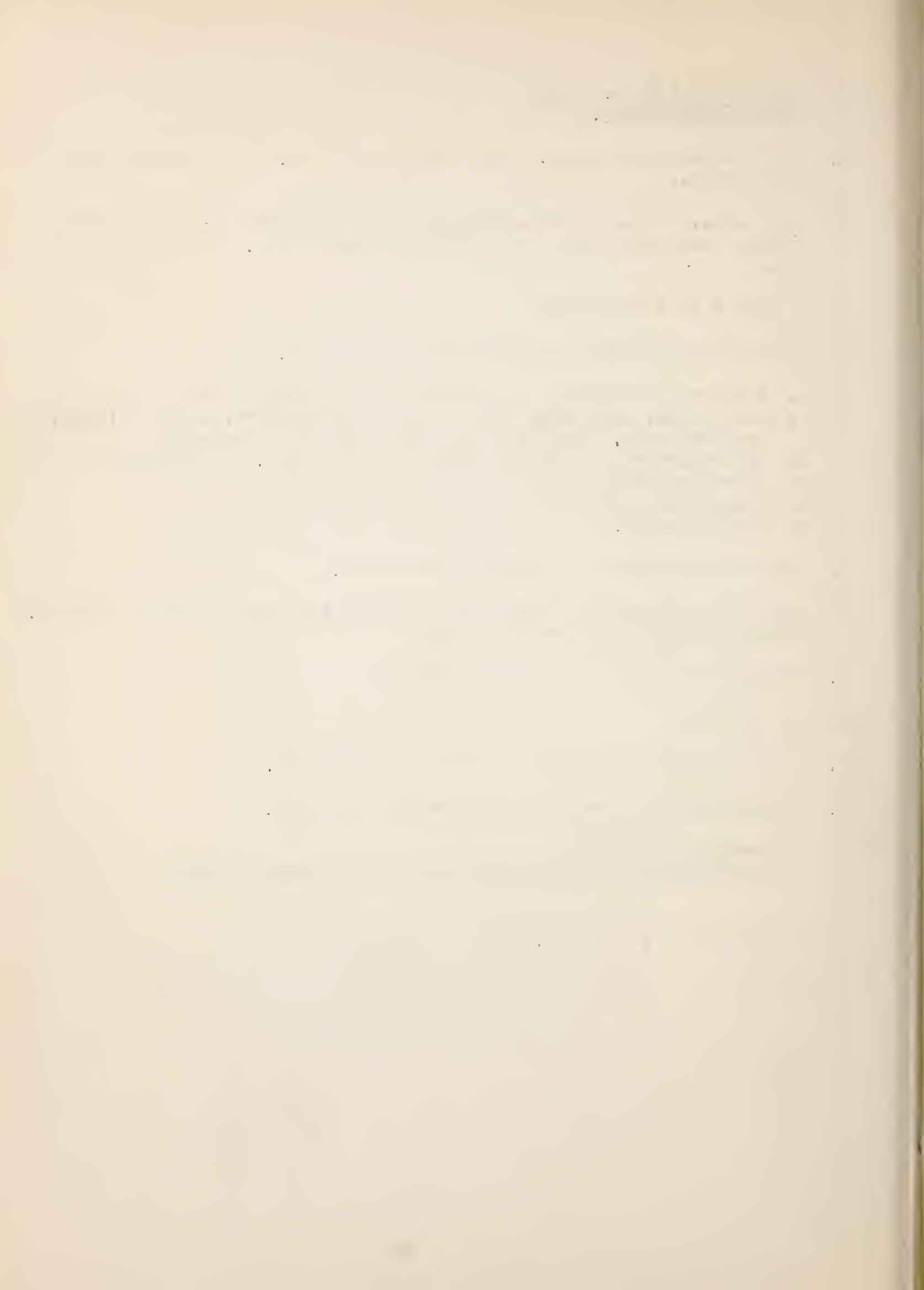
(See Over)

13. Produces excellent honey. Many varieties. Poisonous to livestock. Shipmast locust from root cuttings only, said to be a much better tree.  
a. Palatability: cattle, high; horses, high; sheep, medium; rabbits, high.

References - 1, 2, 3, 5, 9, 11, 13, 15, 16, 21, 22, 28, 29, 40, 41.

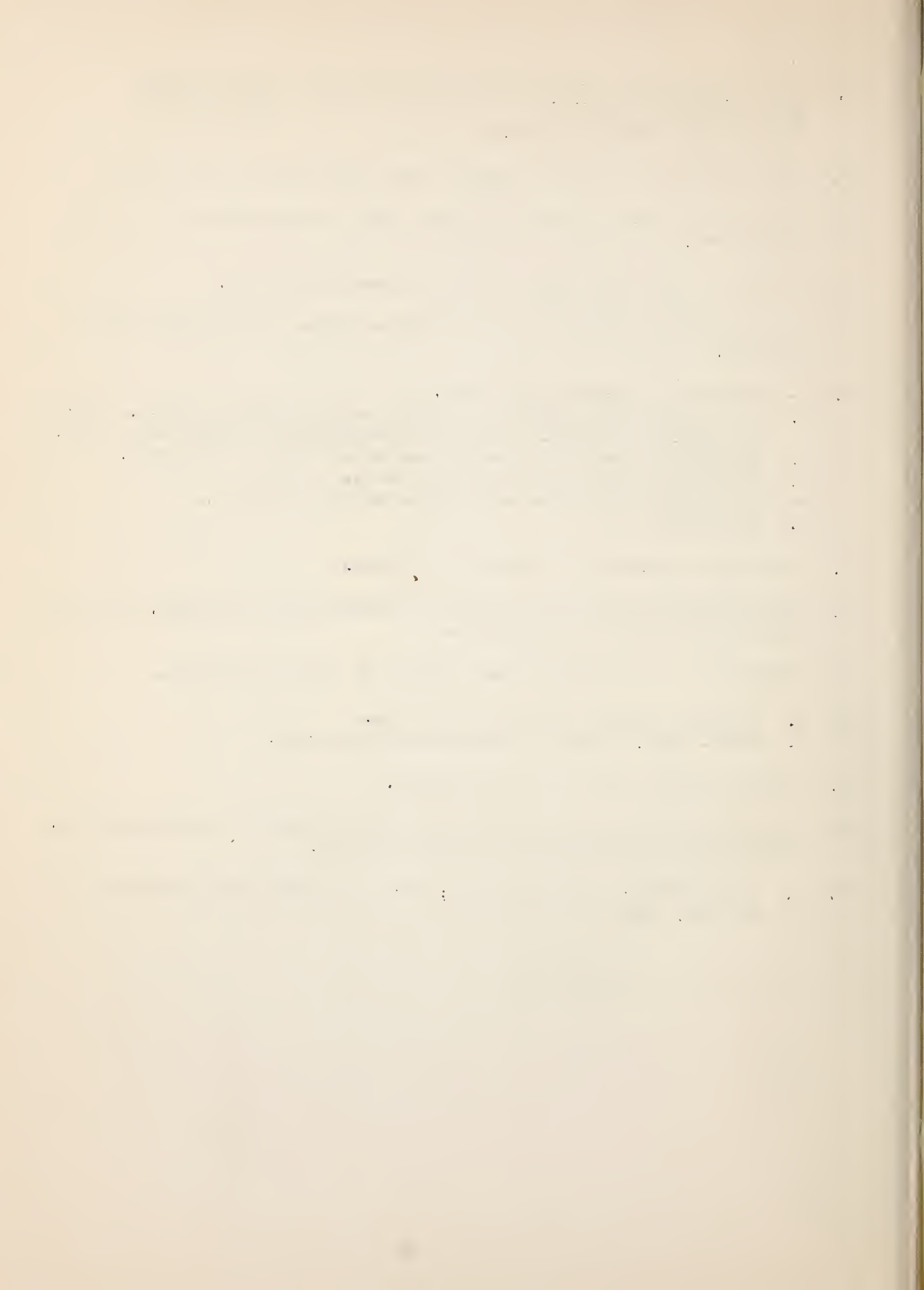
1. Rosa fendleri Rydb. - Rose  
(Rosa woodsii Lindl.)
2. United States and Mexico. South Dakota, Montana, Utah, western Texas, into Mexico.
3. Open woods. Found in the Artemisia, pinon, ponderosa pine and aspen belts. Associated with maple, willow, aspen, alder, service berry and oaks.
4. A shrub 2 to 6 feet high.
5. Spreading root system, deep penetrating laterals.
6.
  - a. Prefers an abundance of moisture but will grow on drier sites.
  - b. Rich, deep, moist loam with an abundance of humus, also on drier and sandier soils. Usually where sub-irrigation is present.
  - c. Not resistant to alkali; neutral or acid soils. Circumneutral soils.
  - d. Elevation 6000 to 9500 feet above sea level.
  - e. Temperature range -30 degrees to 100 degrees F.
  - f. Very tolerant.
7. Moderately resistant to insects and disease.
8. Seed easily collected, moderately abundant, ripening in the late summer. Easily propagated from root cuttings.
9. Valuable in moist sites for soil binder.
10.
  - a. No value
11. Furnishes food and excellent shelter for wildlife.
12. Spring planting of rooted plants or root cuttings.
13. Palatable to livestock.
  - a. Palatability: cattle, low; horses, low; sheep, medium.

References - 1, 2, 4, 14, 22.



1. Salix amygdaloides wrightii (Anders) Schneider - Wright willow  
(Salix wrightii Anders.) Black willow  
(Salix nigra wrightii Anders.)
2. United States and Mexico. Western Texas and southern New Mexico.
3. Banks of streams. Covillea and pinon belts associated with willows and poplars.
4. A small or large tree with a rather compact, round head.
5. Deep penetrating fibrous roots, fairly windfirm, resists the action of water.
6.
  - a. Requires an abundance of water.
  - b. Deep, rich soils, sandy or gravelly soils containing humus. Nitrogen requirement high. Will grow successfully on heavy clay soils.
  - c. Withstands considerable salts when water supply is abundant.
  - d. From 1000 to 6000 feet above sea level.
  - e. Temperature range from -20 degrees to 120 degrees F.
  - f. Intolerant.
7. Not highly resistant to insects or disease.
8. Seed produced in abundance, easily collected, high fertility, cuttings most satisfactory for propagation.
9. Valuable as a soil binder where cutting by stream is active.
10.
  - a. Valuable locally for posts and poles.
  - b. Light, soft, weak, close-grained, light brown.
11. Provides shelter and food for wildlife.
12. 1-0 rooted stock or rooted cuttings easily handled in spring planting. Cuttings very satisfactory for field planting.
13.
  - a. Palatability: cattle, medium; horses, medium; sheep, medium; rabbits, high.

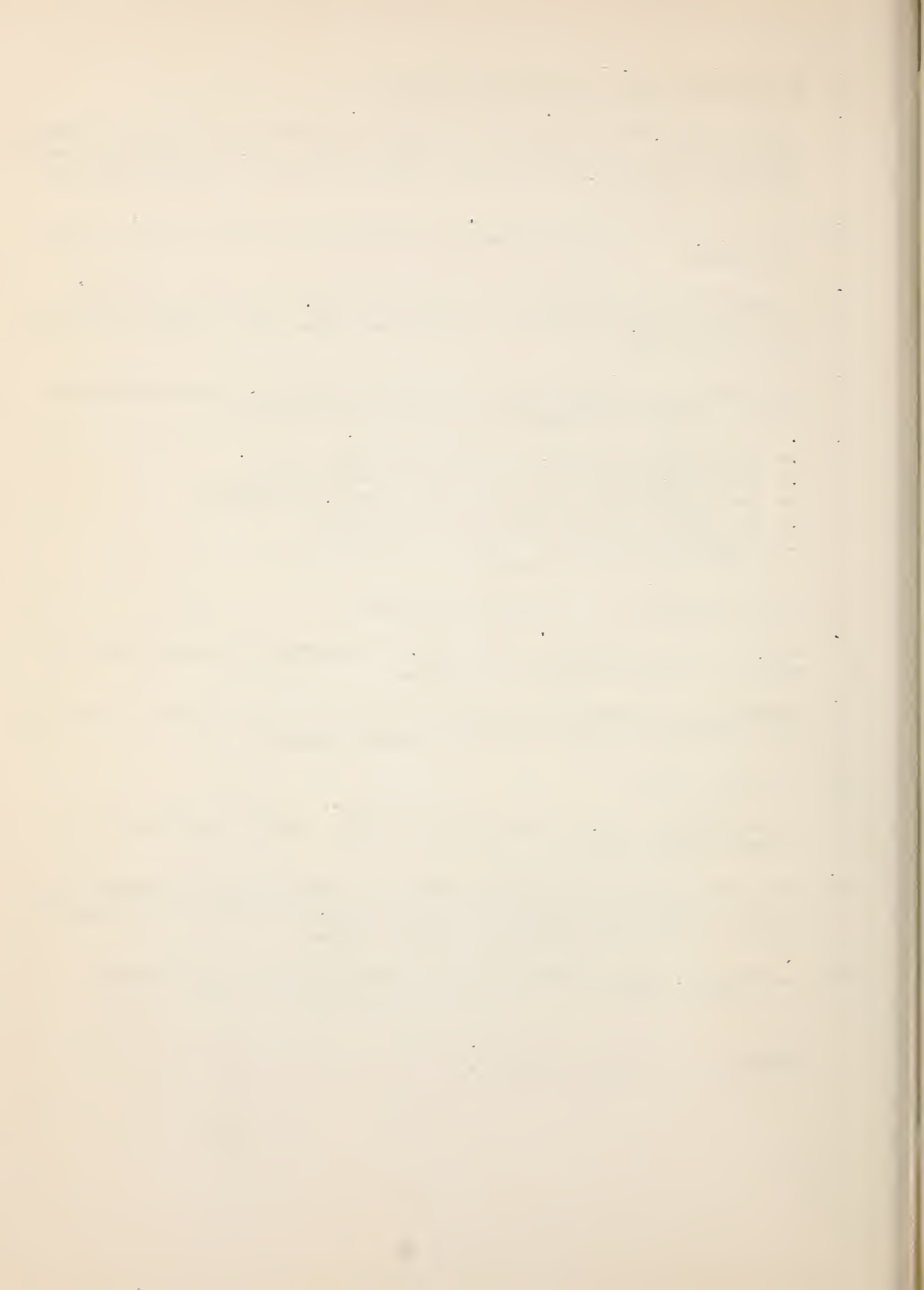
References - 1, 5, 15, 12.





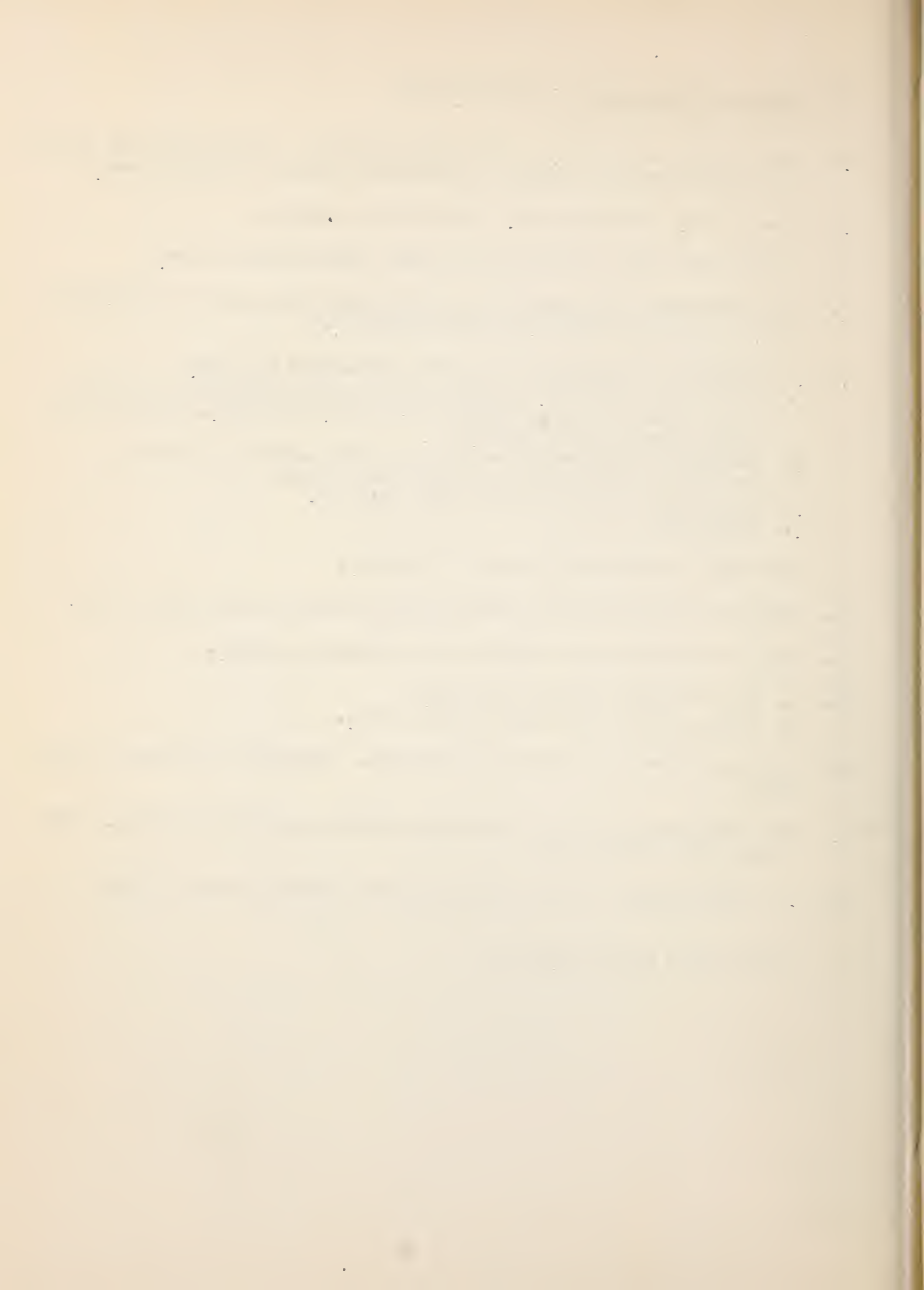
1. Salix exigua Nutt. - Narrow-leaf willow
2. Canada and United States, southern Alberta, British Columbia, southward through Nevada, and eastward to southern Idaho, central Nevada and western Wyoming. Shrubby forms in Nevada, Arizona, Colorado, western Nebraska and Lower California.
3. Along streams and in wet places, associated with other willows, poplars and alders.
4. A shrub 10 to 12 feet tall or a tree rarely 25 feet high, with thin, spreading branches forming a round-topped head. Also a reed-like shrub 4 to 6 feet tall.
5. Roots fibrous and spreading, not highly resistant to under-cutting by water. Spreads prolifically by underground runners.
6.
  - a. Requires an abundance of soil moisture.
  - b. Moist alluvial soils, sand bars and stream banks.
  - c. Resists alkalis and salines when water is abundant.
  - d. Sea level to 10,000 feet above sea level.
  - e. Temperature range -40 degrees to 120 degrees F.
  - f. Very intolerant to shade.
7. Not very resistant to disease or insects.
8. Abundant seed production. Cuttings are preferred for nursery propagation, as seed is difficult to handle.
9. Suitable as a filler on bars, but not as a front line defense on streams where cutting is active and flood pressure extreme.
10. No value to wood.
11. Affords shelter and some browse to wildlife. Slight importance as browse to mule deer.
12. Best propagated in the field by cuttings planted during the winter or spring. Best planted with planting bar or horizontally in moist places. Rooted cuttings are preferred on drier sites.
13.
  - a. Palatability: cattle, medium; horses, medium; sheep, medium; rabbits, high.

References - 2, 12, 13, 14, 22.



1. Salix gooddingii Ball. - Dudley willow  
(Salix vallicola Britt.)
2. United States and Mexico. California southward, eastward through central and southern Arizona, through southern New Mexico to western Texas.
3. Stream banks. Covillea belt. Willows and poplars.
4. A small tree, 25 to 50 feet high, with a broad, rounded crown.
5. Roots fibrous and wide-spreading, penetrating the soil to considerable depth, forming an efficient soil-binding mat.
6.
  - a. Requires an abundance of moisture throughout the year.
  - b. Does well on any soil, prefers sandy or gravelly soils containing humus. Will grow successfully on heavy, clay soils. Willows have a high nitrogen requirement.
  - c. Withstands considerable salts when water supply is adequate.
  - d. From sea level to 5000 feet above sea level.
  - e. Temperature extremes -10 to 120 degrees F.
  - f. Intolerant.
7. Not highly resistant to insects or disease.
8. Abundant seed production, easily handled cuttings most satisfactory.
9. Very valuable for bank control where cutting is active.
10.
  - a. Wood valuable locally for posts.
  - b. Light, soft, weak, light reddish brown.
11. Provides shelter and browse for wildlife. Important as browse for mule deer.
12. 1-0 rooted stock or rooted cuttings suitable for field planting. Cuttings most satisfactory.
13.
  - a. Palatability: cattle, medium; horses, medium; sheep, medium.

References - 12, 13, 14, 15.



1. Salix nigra Marsh. - Black Willow
2. Canada, United States and Mexico. From southern New Brunswick through southern Quebec and Ontario to the region north of Lake Superior, southward to northern and western North Carolina, through South Carolina and Georgia to eastern and central Alabama, and westward to southeastern North Dakota, eastern South Dakota, Nebraska, Kansas, Oklahoma and central and western Texas.
3. Low, moist, alluvial banks of streams and lakes, associated with poplars, alders, and other willows.
4. A tree, usually 30 to 40 feet high, with several clustered stout stems, and thick-spreading, upright branches forming a broad, somewhat irregular open or round-topped head.
5. Roots fibrous and wide-spreading and penetrating the soil to considerable depths, forming an efficient soil-binding mat. Highly resistant to the cutting action of water.
6.
  - a. Requires much moisture throughout the year, either from natural precipitation or a high water table.
  - b. Does well on any soil, prefers sandy or gravelly soils containing humus. Willows have a high nitrogen requirement, but will grow successfully on heavy clay soils.
  - c. Withstands considerable saline salts when water supply is abundant.
  - d. From sea level to 6400 feet above sea level.
  - e. Temperature extremes -40 degrees to 100 degrees F.
  - f. Intolerant to shade.
7. Not highly resistant to insects or disease.
8. Practical nursery propagation is by cuttings 8 to 10 inches long made from past seasons growth taken during winter. Cuttings very satisfactory for field planting where moisture conditions are good.
9. Very valuable for bank control where cutting is active.
10.
  - a. Wood valuable locally for fuel and posts.
  - b. Light, soft, weak, light reddish brown, with thin, nearly white, sapwood.
11. Provides shelter and browse for wildlife. Eaten by deer.
12. Most suitable planting stock from cuttings. May be driven or planted by planting bar or other tool. Winter or spring planting.
13. Most valuable as an erosion-control plant where moisture is available and cutting action prevalent.
  - a. Palatability: cattle, medium; horses, medium.

References - 1, 2, 3, 9, 12, 13.

(See Over)

Also applies in general, except in range, to the following:

1. *Salix laevigata* Bebb - Bobb willow
2. *Salix bonplandiana tounoyi* (Britt) C. Schu. - Tounay willow
3. *Salix lasiandra* Berth. - Western black willow

1. Sambucus coerulca Raf. Blueberry elder  
(*Sambucus glauca* Nutt.)  
(*Sambucus neomexicana* Woot.)
2. United States. Western Montana, through Idaho, Washington south into California, Nevada, Utah, New Mexico and Arizona. *S. glauca* and *S. neo-mexicana* sometimes separated, little difference and may be considered as varieties. Also *S. c. velutina* and *S. c. arizonica*.
3. Dry foothills, open mountain slopes, moist to wet canyons and valleys. Pinon, ponderosa pine, and spruce-aspen belts. Associates service-berry, chokecherry, bromegrass, wheatgrass, pinon, juniper, oaks, aspen.
4. Tree, 30 to 50 feet high, with a tall, straight trunk and stout, spreading branches forming a compact, round-topped head.
5. Taprooted, penetrating to a depth of more than 4 feet, relatively wind-firm.
6.
  - a. Prefers a moist soil but will grow on dry sites.
  - b. Sandy or clayey loams.
  - c. Moderately alkali-resistant, generally neutral or acid sites.
  - d. 2000 to 9000 feet elevation above sea level.
  - e. Temperature range from -30 degrees to 100 degrees F.
  - f. Tolerant.
7. Not resistant to insects and disease.
8. Fruit matures in the summer and fall, crops heavy, fertility good. Easily collected by hand. Germination is slow. Adaptable to nursery production. Ten to twelve months stratification recommended. Suckers freely.
9. Valuable for soil binding.
10.
  - a. Low value to wood.
  - b. Light, soft, weak, coarse-grained, yellow tinged with brown.
11. Valuable as wildlife food and cover. Eaten by Gambel quail.
12. 1-0 rooted stock suitable for field planting in spring. Spreads by suckers.
13. Fruit used for human consumption.
  - a. Palatability: cattle, medium; horses, medium; sheep, medium; rabbits, low.

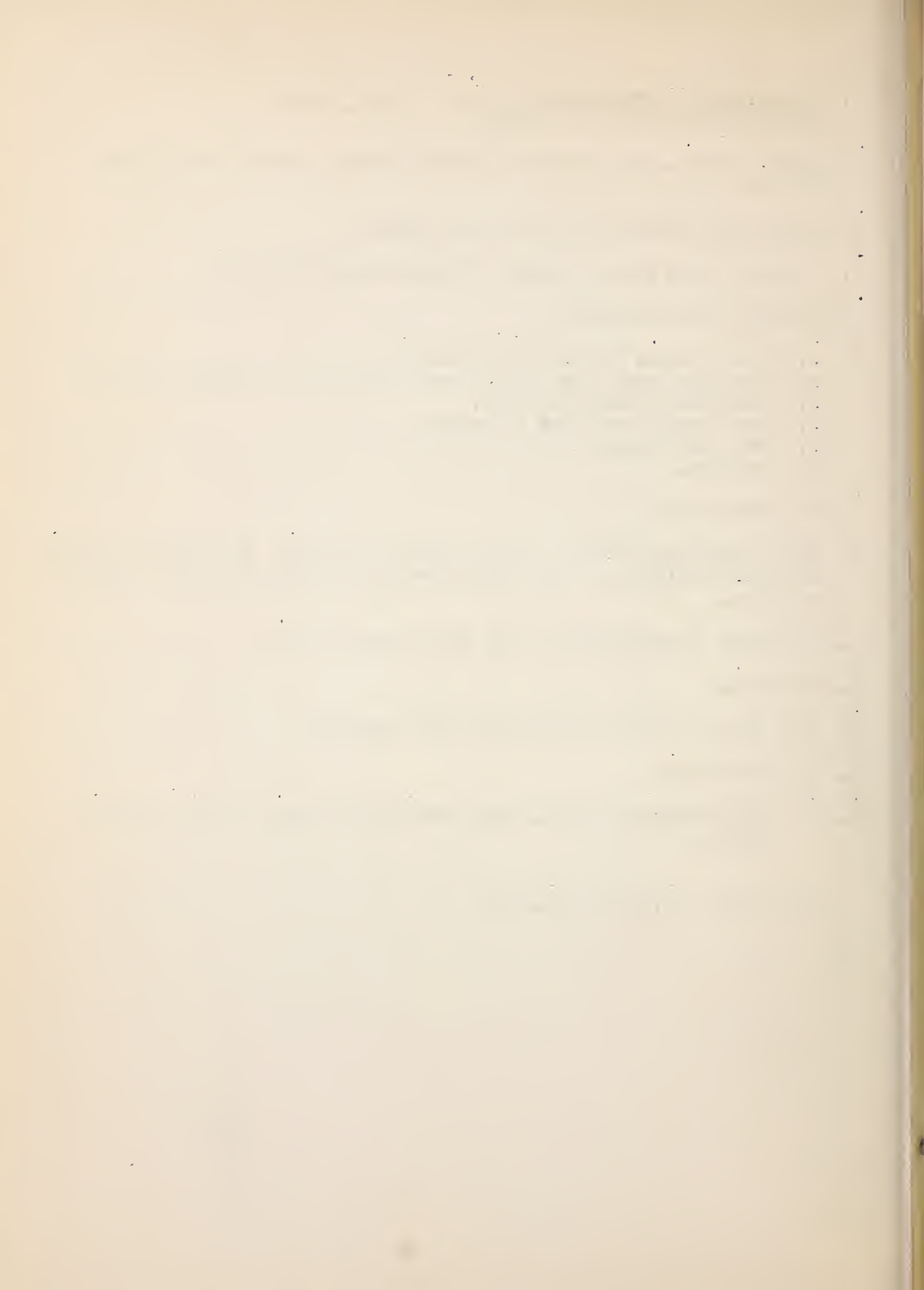
References - 1, 4, 13, 14, 22, 40.





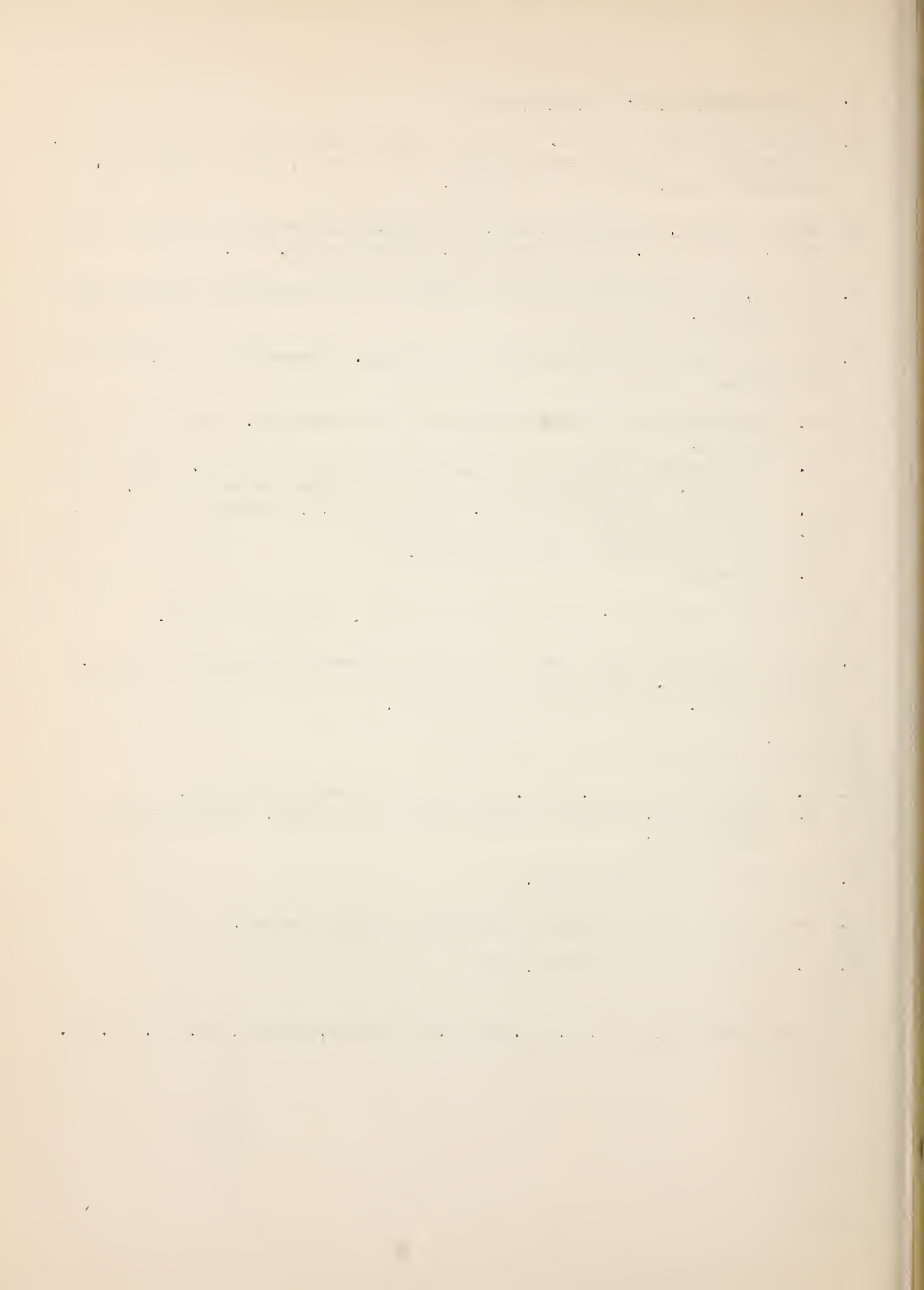
1. Symphoricarpus orbiculatus Moench. - Indian currant  
(Symphoricarpus vulgaris Michx)
2. North America. New Jersey to Georgia, Kansas, Texas, west to South Dakota.
3. Moist shady sites in mountains and canyons.
4. A shrub to six feet in height. Slender upright branches.
5. Fibrous rooted, windfirm.
6.
  - a. Moist places, not drought-resistant.
  - b. Deep, rich soils best, but is not particular if moisture present.
  - c. Moderately alkali-resistant.
  - d. 1000 feet to 7000 feet elevation.
  - e. From -30 degrees to 100 degrees F.
  - f. Tolerant.
7. No information.
8. Seed moderately abundant, easily gathered by hand. Propagated by seeds, cuttings or division. Long stratification period varying with species required.
9. As filler in windbreaks or soil binder where moist.
10. No value.
11. High value as food and protection for wildlife.
12. None available.
13.
  - a. Palatability: cattle, low; horses, low; sheep, medium; rabbits, medium.

References - 1, 2, 16, 19, 22.



1. Ulmus americana L. - American elm
2. Canada and United States. Southern Newfoundland west to Lake Superior, southward to Florida, westward into North Dakota, western Nebraska, central Kansas, Oklahoma and Texas.
3. River bottoms, intervalles, low, rich hills, and banks of streams, associated with oaks, ashes, sycanores, yellow poplar, etc.
4. A tree, sometimes 100 to 120 feet high, with an inversely conic round-topped head.
5. Deep, extensive root development, windfirm. Penetrates 5 to 10 feet in the soil.
6.
  - a. Requires ample moisture, withstands some drought. Water table within 10 feet.
  - b. Moist, rich alluvials, loams, moderately well drained, grows on poorer soils. Not exacting, does poorly on fine textured soils.
  - c. Moderately alkali-resistant. pH 6.0 to 8.0, circumneutral soils.
  - d. Sea level to 6000 feet above sea level.
  - e. From -40 degrees to 120 degrees F.
  - f. Tolerant.
7. Moderate resistance to insects and disease. Flat head borer.
8. Seed ripens in April, abundant, easily gathered from ground by hand, high fertility. Germinates promptly and plants are easily handled in the nursery. Also propagated by layers.
9. A soil binder in wet or moist sites.
10.
  - a. Valuable for wood, fuel, lumber, and special carpentry.
  - b. Heavy, hard, strong, tough, difficult to split, coarse-grained, light brown.
11. Valuable for wildlife food.
12. 1-0 rooted stock for spring planting. Easily handled.
13.
  - a. Palatability: rabbits, low.

References - 1, 2, 3, 9, 11, 13, 5, 6, 15, 36, 37, 16, 19, 20, 21, 22.



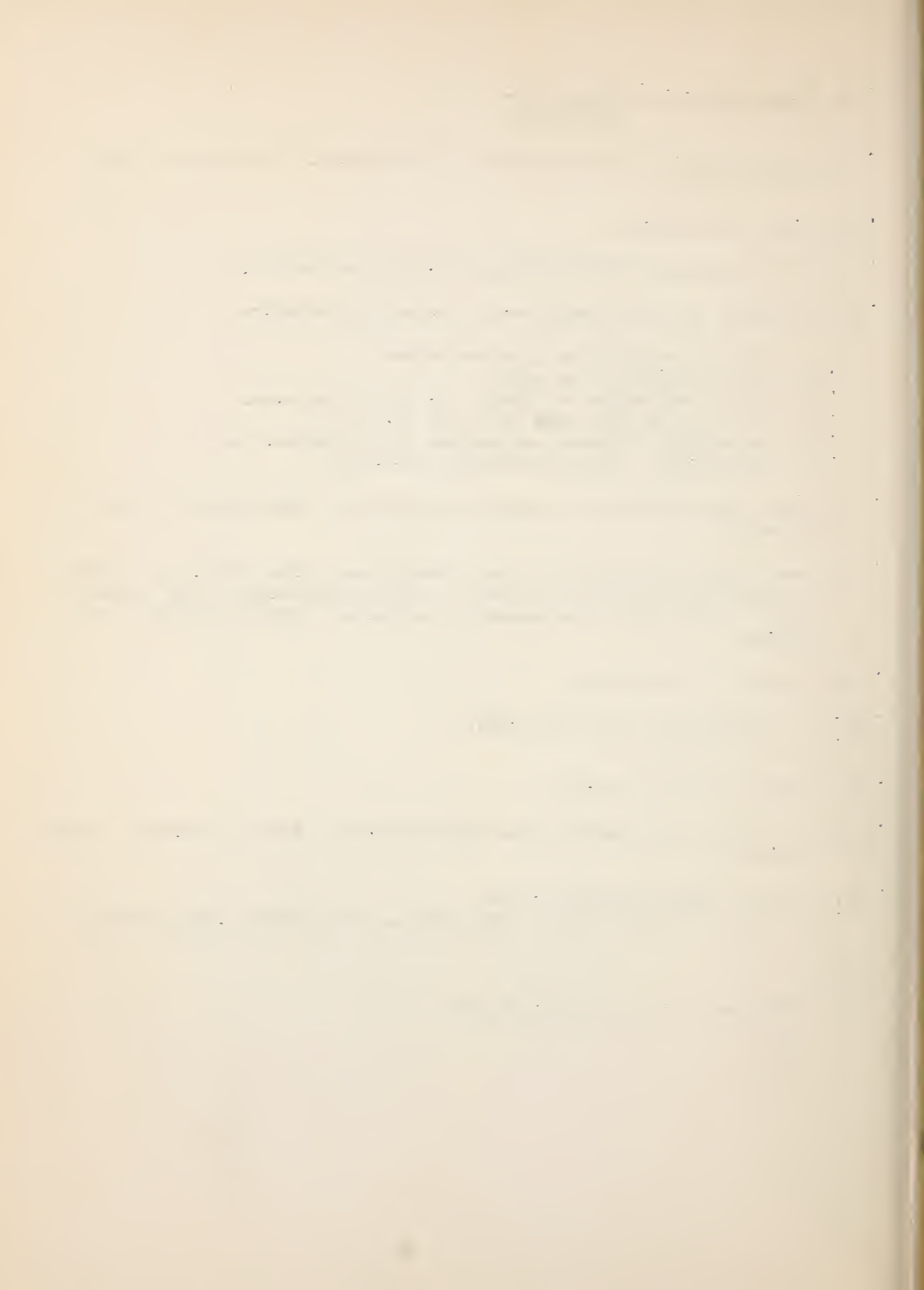
1. Ulmus parvifolia Jacq. - Chinese Elm.
2. North and central China, Korea and Japan. Naturalized 1794.
3. Asia.
4. A small tree 45 to 75 feet tall, with a broad, round head.
5. Spreading tap and lateral roots, moderately windfirm.

See *Ulmus pumila* L. for further information.



1. Ulmus pumila L. - Chinese Elm  
Dwarf Elm
2. Eastern Siberia, northern China, and Turkestan. Naturalized in the United States.
3. Asia. Naturalized.
4. Small spreading tree attaining 45 feet, also shrub-like.
5. Spreading tap and lateral roots. Moderately windfirm.
6.
  - a. Drought-resistant to a marked degree.
  - b. Not particular as to soil.
  - c. Marked resistance to alkali. pH 6.9 to 7.2 best.
  - d. Sea level to 7000 feet above sea level.
  - e. Temperature extremes -30 degrees to 125 degrees F.
  - f. Intolerant. (Ulmus parvifolia tolerant.)
7. Moderately resistant to insects and disease. Susceptible to cotton root-rot.
8. Seed matures from April to June, heavy crops, high fertility. Easily collected by shaking onto canvas. Germination prompt, seeds should be sown in nursery the same season as collected. Easily handled in the nursery.
9. Valuable in windbreaks.
10.
  - a. Valuable for fuel and posts.
  - b. No information.
11. Little value to wildlife.
12. 1-0 rooted stock suitable for field planting. Plant in spring. Easily handled.
13. Suffers snow and windbreakage.
  - a. Palatability: cattle, high; horses, high; sheep, high; rabbits, high.

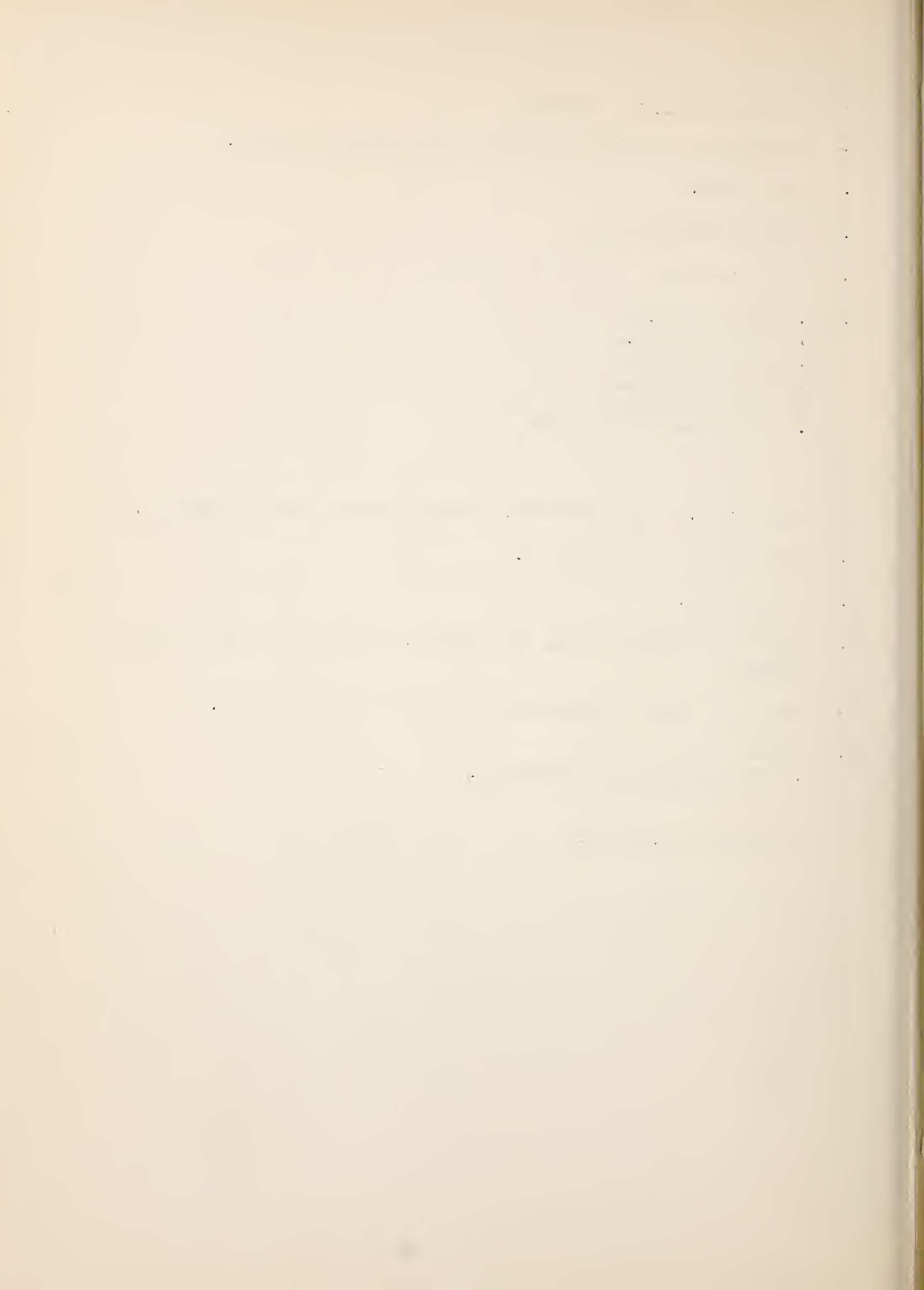
References - 1, 2, 11, 19, 20, 40.





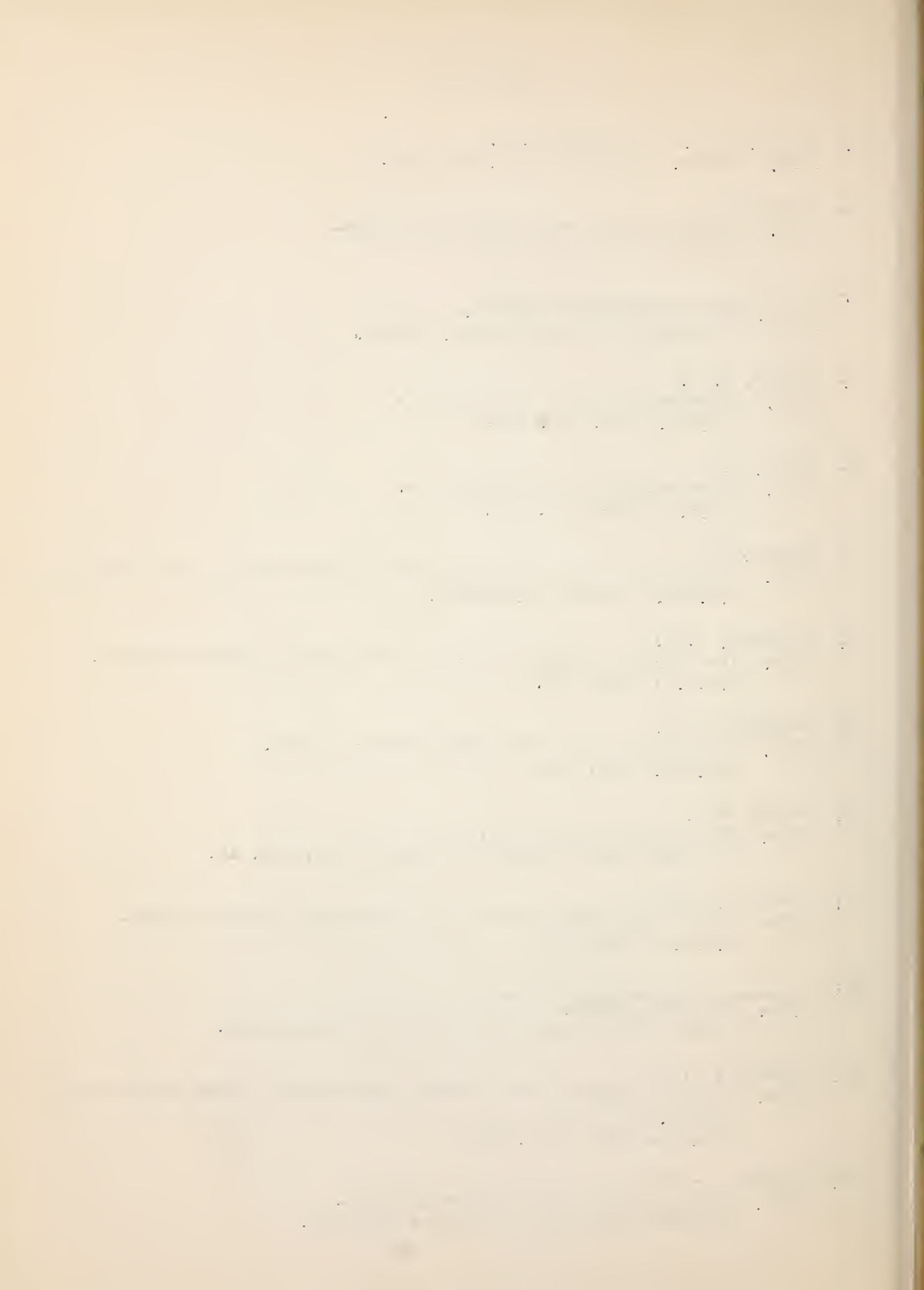
1. Vitis labrusca L. - Foxgrape
2. New England to Georgia, Tennessee and southern Indiana.
3. Moist woods.
4. A strong growing vine.
5. No information.
6.
  - a. Moist soils.
  - b. Any good soil.
  - c. No information.
  - d. No information.
  - e. No information.
  - f. Tolerant.
- 7.
8. Heavy crops, easily gathered. Propagation by seed or cuttings.
9. Soil binder in moist places.
10.
  - a. No value.
11. High food and cover value to wildlife. Utilized by both birds and mammals.
12. Rooted cuttings or cuttings suitable for field planting.
13. Fruit.
  - a. No palatability information.

References - 1, 2, 22.

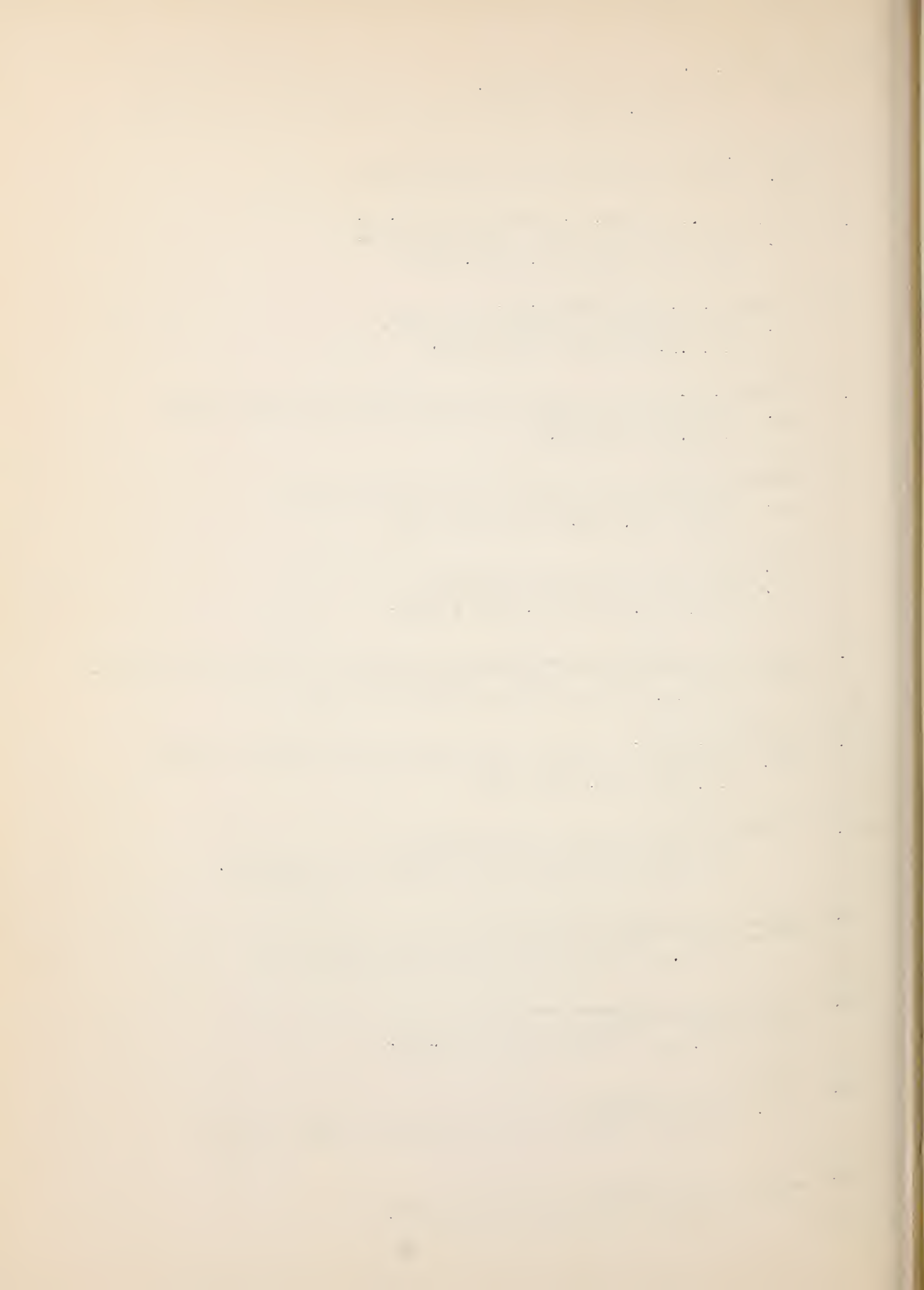


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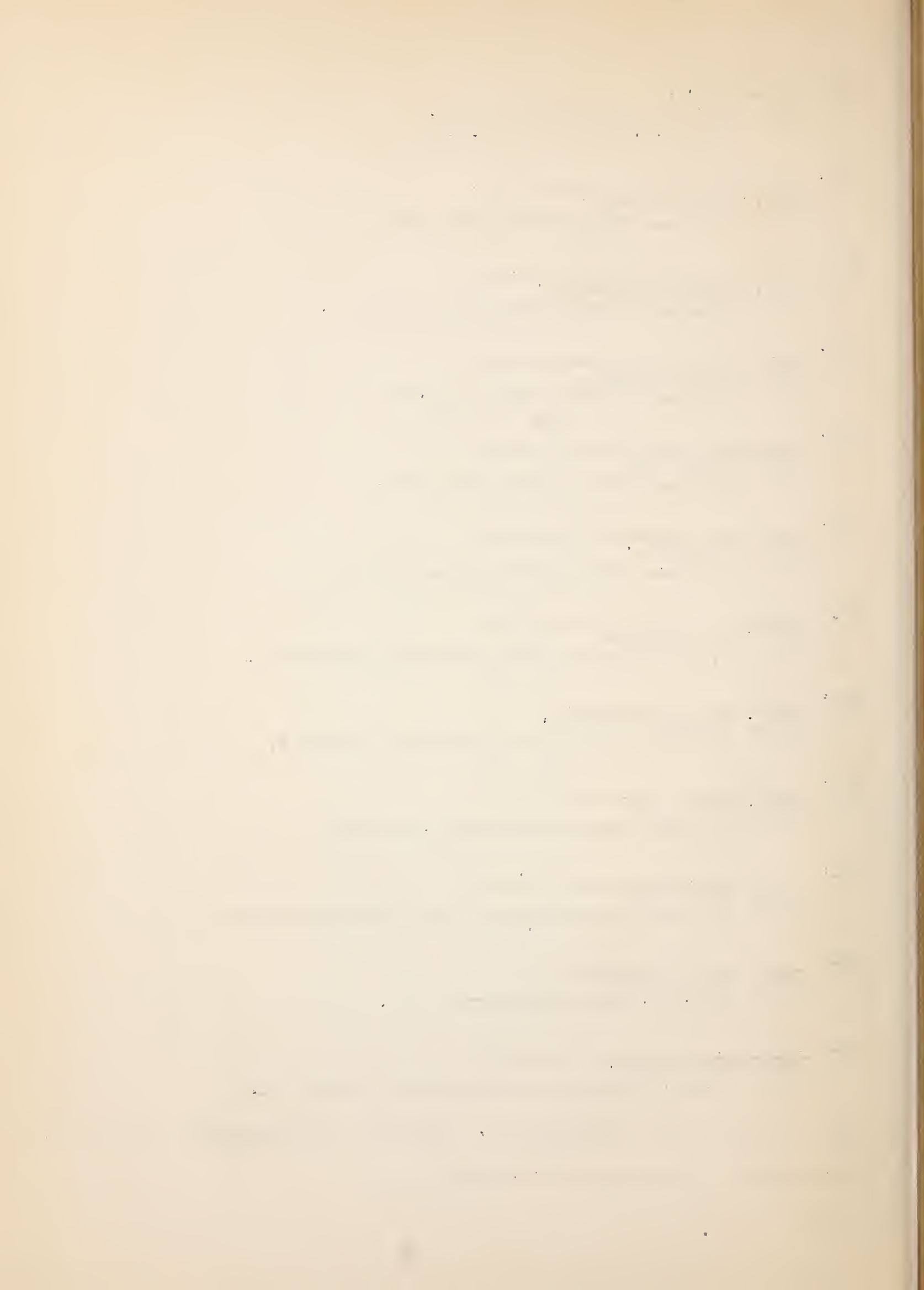
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U.S.D.A. Forest Service Cir. 83 (Rev.)
31. \_\_\_\_\_  
1907. Hardy catalpa.  
U.S.D.A. Forest Service Cir. 82.
32. \_\_\_\_\_  
1907. Green ash.  
U.S.D.A. Forest Service Cir. 92.
33. \_\_\_\_\_  
1909. Boxelder.  
U.S.D.A. Forest Service Cir. 86 (Rev.)
34. \_\_\_\_\_  
1908. Blue spruce.  
U.S.D.A. Forest Service Silvical Leaflet 29.
35. \_\_\_\_\_  
1907. Engelmann spruce.  
U.S.D.A. Forest Service Silvical Leaflet 3.
36. \_\_\_\_\_  
1909. White elm.  
U.S.D.A. Forest Service Cir. 66 (Rev.)
37. \_\_\_\_\_  
\_\_\_\_\_ . White elm.  
U.S.D.A. Forest Service Forest Planting Leaflet 13.
38. \_\_\_\_\_  
1907. Black walnut.  
U.S.D.A. Forest Service Cir. 88.
39. \_\_\_\_\_  
1909. Pinon pine.  
U.S.D.A. Forest Service Silvical Leaflet 47.
40. L. N. Goodding - observations. (Recorded on Revegetation Form SCS No. 1)
41. Journal of Forestry XXXV:8:709-727.





Revegetation Form #1 SCS, Jan., 1936  
PLANT SPECIES INFORMATION FORM

N.B. Underline suitable word wherever possible.

1. Plant name \_\_\_\_\_  
Scientific \_\_\_\_\_ Common \_\_\_\_\_ Family \_\_\_\_\_
2. Native country \_\_\_\_\_ Native habitat \_\_\_\_\_
3. Class, longevity in years \_\_\_\_\_: Tree, shrub, forb, climber, creeper
4. Growth habit of top: Height \_\_\_\_\_, spread \_\_\_\_\_, erect, spreading, drooping, sprawling, prostrate, plants solitary, crowded in dense stands, colonial (as in aspen), bunch type, stooling, mat forming, sod forming, rhizome forming, layering, etc. \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
5. Growth habit of roots: Tap, spreading, combination, depth \_\_\_\_\_, spread \_\_\_\_\_, woody, fibrous, fleshy, abundant, very abundant, sparse. Longevity in years \_\_\_\_\_. Remarks \_\_\_\_\_

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6. Distribution: Wide, local, abundant throughout its range, abundant in certain localities, not abundant anywhere. Zone \_\_\_\_\_ altitude \_\_\_\_\_, exposure (north, etc.) \_\_\_\_\_
7. Associates: \_\_\_\_\_

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8. Drouth resistance: extreme, moderate, moisture loving
9. Soil preference: Heavy, medium, light; clay, loam, sand, gravel, rocky
10. Alkali tolerance: Extreme, moderate, neutral, acid
11. Habitat: Stream beds, banks, bottom land, mesas, plains, gentle slopes, steep slopes, others \_\_\_\_\_
12. Degree of aggressiveness: Very, moderately so, not at all
13. Dates: Flowering \_\_\_\_\_, seed maturity \_\_\_\_\_, planting \_\_\_\_\_
14. Seed production: Heavy, medium, light. Seed fertility: Good, fair, poor

15. Seed collection: Easy, difficult. Why? \_\_\_\_\_  
Method \_\_\_\_\_
16. Seed germination: Prompt, medium, slow, delayed. Time required \_\_\_\_\_  
Pre-planting treatment \_\_\_\_\_
17. Vegetative propagation by \_\_\_\_\_: Easy, fairly easy, difficult
18. Adaptability for nursery production: Good, medium, poor; for seed, cuttings,  
rooted plants, \_\_\_\_\_
19. Age of rooted stock to use for field planting (designate as 1-0, 2-1 etc.)
20. Transplanting in Nursery: Easy, fairly easy, difficult
21. Adaptability for field planting: Seed cuttings, rooted stock
22. Uses (Designate relative importance by number of checks.) Soil binder \_\_\_\_\_,  
sand binder \_\_\_\_\_, desilting agent \_\_\_\_\_, timber \_\_\_\_\_,  
wild life \_\_\_\_\_, general revegetation \_\_\_\_\_, forage: Palatability  
C & H \_\_\_\_\_, S & G \_\_\_\_\_, Other uses: \_\_\_\_\_
23. Value for general or specific use (specify) \_\_\_\_\_  
\_\_\_\_\_
24. Outstanding for any particular purpose? \_\_\_\_\_  
\_\_\_\_\_
25. Relative value: \_\_\_\_\_. Is some other plant better for same  
purpose? \_\_\_\_\_
26. Remarks: \_\_\_\_\_
27. To what locality does this information apply? \_\_\_\_\_

Submitted by \_\_\_\_\_



